
COURSE LIST

Accounting

ACCT 200 Financial Accounting 3 credits

The accounting process, financial statement preparation, and analysis. Includes the accounting cycle, asset, liability, and equity accounting. Emphasis on the use of accounting data.

Prerequisites: MATH 112 or MATH 115 or MATH 121 or MATH 130 or MATH 181

ACCT 210 Managerial Accounting 3 credits

Preparation and analysis of cost-based management reports: use of cost information to make short-term operating decisions and long-term capital decisions.

Prerequisites: ACCT 200

ACCT 220 Accounting Cycle Applications 1 credit

This course provides extensive hands-on practice applying all steps in the accounting cycle. Emphasis will be placed on completion of journal entries, adjusting entries, closing entries, and preparation of financial statements.

Prerequisites: ACCT 200

ACCT 300 Intermediate Financial Accounting I 3 credits

An in-depth analysis of financial accounting concepts and procedures, and includes coverage of the income statement, balance sheet, time value of money, receivables and inventories.

Prerequisites: ACCT 200

ACCT 301 Intermediate Financial Accounting II 3 credits

A continuation of Accounting 300. An in-depth analysis of long-term liabilities, stockholders' equity, leases, pensions, deferred taxes and the statement of cash flows.

Prerequisites: ACCT 300

ACCT 310 Management Accounting I 3 credits

Emphasizes product and service costing, including job order and process costing systems. Other related topics are budgeting, pricing, cost-volume-profit analysis, standards and variance analysis.

Prerequisites: ACCT 200, ACCT 210

ACCT 320 Accounting Analytics and Information Systems 3 credits

A discussion of various accounting information systems. Topics include documentation, internal control, system design, knowledge structures, database design, software evaluation, systems applications and current developments.

ACCT 330 (3.00) Individual Income Tax 3 credits

The course examines the principles and procedures relating to the determination and computation of federal income taxes for an individual. Federal estate tax, gift tax, and income taxation of estates and trusts are also examined.

Prerequisites: ACCT 200, ACCT 210

ACCT 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: Permission of the Chairperson of the department; co-op contract; other prerequisites may also apply.

ACCT 400 Advanced Financial Accounting 3 credits

A study of accounting principles and concepts for mergers, acquisitions, consolidated statements, foreign currency translation, partnerships, and governmental/not for profit.

Prerequisites: ACCT 301

ACCT 410 Business Income Tax 3 credits

The course examines the principles and procedures relating to the determination and computation of federal income taxes for various business entities including sole proprietorships, corporations, partnerships and tax-exempt entities. The course also covers tax research procedures.

Prerequisites: ACCT 300, ACCT 330

ACCT 421 Assurance Services I 3 credits

An overview of the external audit process, the issues facing the auditing profession today, and assurance services. Includes detailed coverage of the AICPA Code of Conduct, audit planning, substantive testing, auditors' responsibilities for detecting fraud, and audit reports.

Prerequisites: ACCT 300

ACCT 492 Study Tour 1-3 credits

Study tours are led by Minnesota State University, Mankato faculty and provide students with opportunities to visit companies and attend lectures by renowned experts from key sectors of economy, government, and business.

ACCT 497 Internship 1-6 credits

Supervised experience in public, industrial or governmental accounting. Students must meet standards established by the employer and the Department of Accounting.

ACCT 499 Individual Study of Accounting 1-4 credits

Aging Studies

GERO 200 Family Dynamics of Aging 3 credits

This course will answer the question "Why should I care about getting old when I am young?" through an exploration of the life course perspective, service-learning opportunities, and written reflection and exploration. Diverse Cultures: Gold

GERO 200W (3.00) Family Dynamics of Aging 3 credits

This course will answer the question “Why should I care about getting old when I am young?” through an exploration of the life course perspective, service-learning opportunities, and written reflection and exploration. Diverse Cultures: Gold

GERO 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one semester and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

GERO 450 Innovations in Aging Policy 3 credits

Engaging with the practice of policy development, understanding critical policies impacting the experience of aging, and learning how to become a policy entrepreneur will be the focus for this course. The course will also explore innovations in aging policy globally.

GERO 480 Long-Term Care Administration 3 credits

Overview of how facilities administer supports and services to the elderly, with an emphasis on state and federal laws and the delivery of care. Course addresses the organization, operations, services, and programs of long-term care facilities. Meets state education requirements for specific content area.

GERO 485 Topics in Gerontology 1-3 credits

Topics vary as announced in class schedule. May be retaken for credit if topic is different.

GERO 487 Long-Term Care Regulatory Management 3 credits

This course in regulatory management covers the legal, regulatory, and funding provisions and requirements governing operation of long-term care supports and services. The course meets the state educational requirement for a specific content area.

GERO 490 Workshop 1-3 credits

Workshop topics vary as announced in class schedule. May be retaken for credit.

GERO 491 In-Service 1-6 credits

GERO 497 Internship 1-6 credits

Prerequisites: Consent

GERO 498 Practicum: Nursing Home Administration 1-6 credits

For students following plan of study for nursing home administration licensure only.

Prerequisites: by application and consent only

GERO 499 Individual Study in Gerontology 1-4 credits

The school and community health programs prepare health professionals with expertise in health promotion and disease prevention for employment in public health and community health agencies, health care facilities, business, and industry and schools.

AgriBusiness & Food Innovation

AGBZ 110 Agronomy Selling Skills 3 credits

This course covers the basic and advanced principles and techniques used in selling agricultural merchandise and services. Agricultural Sales has taken on increased importance in recent years. The introduction of new products and services has magnified the need for technically competent knowledgeable sales personnel. Roleplaying and advanced, in-depth sales presentations will be done in class. Students will also be required to make an industry visit and write appropriate letters. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 111 Introduction to Agriculture Economics 3 credits

This course is an introduction to agricultural economics. Economic concepts of the food, fiber, and fuel industry will be explored through problem solving exercises and graphical analysis. Consumer and business behavior will be analyzed under various market and regulatory conditions, with major focus spent on determining changes to equilibrium of aggregate supply and demand curves. Both microeconomic and macroeconomic factors will be defined and discussed in relation to global and local agribusiness value chains, including many factors affecting farmers in the American Midwest. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 315 Agronomy Finance Management 4 credits

This course covers major aspects of agribusiness from financial management through financial problem solving, analysis, and planning. Students will apply economic and financial concepts by creating balance sheets, income statements, cash flows, inventory controls, and budgets. Students will have the opportunity to apply what they have learned in a computerized farm supply business simulation. Students will also develop management skills needed to be an effective agribusiness manager. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 330 AgriBusiness & Food Supply Chain Management 3 credits

This course examines supply chain concepts and principles, theoretical concepts and their application to modern and future agriculture industries. This course will have an emphasis on regional agriculture and food commodities as well as processed food production and manufacturing. Professionals in the agriculture industry will be brought into class to explain how agribusiness supply chain knowledge and skills are essential to various sectors. Students will have an opportunity to broaden their thinking, understanding, and professional potential as related to the agribusiness and food industry while interacting with professionals and facility tours. The course does not apply toward any College of Business majors or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 340 Commodity Marketing Principles **3 credits**
This course covers the principles of agricultural commodity marketing, including cash, forward, futures, and options contracts. Economic impacts on supply, demand, and equilibrium pricing for commodities will be explored. Students will participate in simulated marketing transactions and track local and terminal market pricing. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 345 Commodity Marketing Strategies **2 credits**
This course covers strategies of commodity marketing of agricultural products. Students will apply marketing principles in various market situations. Students will work with forward contracts, basis contracts, futures contracts, and option strategies in agriculture commodities. Students will develop market plans for agribusiness marketing and input needs. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 350 Agribusiness Transfer & Law **3 credits**
This course covers farm estate planning and law topics with direct application to production agriculture. Topics include federal and state estate tax laws and their impact on the transfer of agriculture property. Estate planning options such as wills, life insurance and trusts will be explored. Other topics include farm partnerships and corporations, agricultural legal case studies, basic contracts, legal land descriptions, fence regulations, animal legalities, water rights, bankruptcy, gifting, and liability issues. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 370 AgriBusiness Finance **3 credits**
The goal of this course is to provide a basic understanding of finance for students entering agribusiness profession. The primary objective of this course is to cover all basic topics, including time value of money, agricultural lending, financial statement analysis following Generally Accepted Accounting Principles (GAAP), the Farm Credit System, risk in agribusiness, legal matter in agribusiness, national and international trend in agribusiness finance. The course does not apply toward any College of Business majors or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 371 Agricultural Technology Seminar **2 credits**
This seminar will provide students the opportunity to self-direct studies in agricultural technology in their areas of interest. Technologies to be considered could include but are not limited to, plant protection, precision farming, application industries, livestock equipment, biotechnologies, financial resource management, sustainable agriculture, environmental impacts of agriculture, agricultural workforce, and agricultural production. Some organized events will be part of this course. The major emphasis will be self-directed learning. **THIS COURSE IS FOR BAS AGRONOMY MAJORS ONLY.** The course does not apply toward any College of Business majors, certificates, or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 492 Study Tour **1-3 credits**
This course is designed to give students an opportunity to study abroad while learning basic business principles. The course focuses on building business knowledge in agriculture, food and trade while experiencing these concepts in another country. The course also focuses on cultural competency and understanding and experiencing a different culture. An interactive activity will also take place with a company. The course does not apply toward any College of Business majors or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

AGBZ 496 Internship **1-4 credits**
Supervised experience in agribusiness or food related organizations, industry, state, or federal institutions. The course does not apply toward any College of Business majors or minors. The course serves as a counterpart to a South Central College course for ease of transfer.

American Indigenous Studies

AIS 101 Introduction to American Indigenous Studies **3 credits**
Class introduces students to history of the discipline and surveys both historical and contemporary topics of importance to American Indian Studies including gender roles, education, sovereignty treaties, and oral traditions.

AIS 112 Elementary Ojibwe I **4 credits**
An introduction to the basic skills of listening, speaking, reading and writing in the Ojibwe language as well as non-linguistic aspects of cultural background and history. Diverse Cultures: Purple

AIS 113 Elementary Ojibwe II **4 credits**
An introduction to the basic skills of listening, speaking, reading and writing in the Ojibwe language as well as non-linguistic aspects of cultural background and history. Diverse Cultures: Purple

AIS 130 Introduction to Indigenous Education **3 credits**
An introduction to Indigenous cultural content, worldview, and concepts of Indigenous education, knowledge, and learning. Surveys the historical and present-day relationships between educational institutions, policies, practices, and Indigenous communities. Explores Indigenous communities across the U.S. with particular attention to Indigenous nations in Minnesota. Diverse Cultures: Purple

AIS 210W Oral Traditions **3 credits**
Oral traditions are at the base of all American Indian cultures. This class will provide students with the necessary tools for a better understanding of traditional knowledge and its importance within diverse traditional cultures. Diverse Cultures: Purple

AIS 211 Native America to 1900 **3 credits**
This course is an introduction to Native American history from creation to 1900 in North America. It introduces students to the continuity of social, cultural, political, and economic diversity amongst Native American peoples and focuses on adaptations to intertribal and colonial relationships during this time period. Diverse Cultures: Purple

AIS 212 Native America 1900 to Present **3 credits**
This course is an introduction to Native American history from 1900 to present day. It introduces students to the continuity of social, cultural, political, and economic diversity amongst Native American peoples and focuses on the impact of federal Indian policy, issues of power, sovereignty, identity, activism, and self-determination. Diverse Cultures: Purple

AIS 220W Introduction to Tribal Sovereignty 3 credits

Course introduces students to the legal side of being American Indian. Politics and policies will be examined to show how a contemporary native experience is shaped through American courts, Presidential chambers, and Native activist movements. Diverse Cultures: Purple

AIS 230W American Indians of Minnesota 3 credits

This course will provide overview of Minnesota Indian nations and their relations to each other and the effects of European incursion. Subsequent relations will focus on the US-Dakota war and its aftermath. Diverse Cultures: Purple

AIS 240W American Indian Women 3 credits

Being American Indian and being woman creates a unique situation for women who have been directly influenced by the differences of gender roles from two intersecting cultures. This course will focus on how those differences have affected American Indian Women. Diverse Cultures: Purple

AIS 275 Selected Topics 3 credits

The course is offered according to student demand and instructor availability/expertise. A variety of topics related to ethnic and cultural areas will provide curriculum enrichment on an ongoing basis.

AIS 300W American Indian Leaders 3 credits

Examines leadership prior to European colonization, the overlap of Indian and colonial leadership, contemporary governmental leadership, and contemporary tribal leadership. Define what is and is not leadership and examine characteristics of individuals deserving the title of leader among American Indians. Diverse Cultures: Purple

AIS 330 Indigenous Education 3 credits

This class introduces students to Indigenous perspectives of education, knowledge, and learning. Students will explore the historical relationships between educational institutions, policies, practices, and Indigenous communities. Through an engagement with present day efforts of educators, programs, and institutions that incorporate and engage traditional knowledges, students will develop a deeper understanding of Indigenous education and ways to promote teaching practices and pedagogies that value and support a diverse educational community. Diverse Cultures: Purple

AIS 340 American Indians in Film 3 credits

This course examines American Indian identity as it relates to Hollywood film industry history. Underlying issues of contemporary Indians are also addressed through an introduction to Native Cinema and the effects of current technologies and globalization. Diverse Cultures: Purple

AIS 360 Indigenous Peoples and Environmental Struggles 3 credits

Introduces students to the differences between indigenous and Western views of the environment. Analyzes the impact of invasion and encroachment on indigenous societies' interactions with nature. Compares historical and contemporary environmental issues in indigenous societies. Diverse Cultures: Purple

AIS 380 The Sacred Landscape 3 credits

Course introduces students to the various ways that land is used by American Indians. We will explore traditional land use, contemporary land use, and land issues that impact American Indians and cultural activities that are tied to the land. Diverse Cultures: Purple

AIS 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one semester and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

AIS 455 Museum Science and Representation 3 credits

Introduces students to museum science and how historic constructs, practices, and contemporary issues of the museum as an institution relates to the representation of American Indians. Focus will be on translating western practices to an Indigenous aesthetic. Diverse Cultures: Gold

AIS 460 Behaving Like Relatives 3 credits

Working with a faculty advisor, students will gain practical knowledge of fieldwork techniques and gain practical experience through this experiential learning course. Students will learn to approach indigenous communities and people with respect to cultural practices and "behave like relatives" in their research practices. This course is a capstone research project for the AIS program. Diverse Cultures: Gold

Corequisites: Permission of AIS faculty member.

AIS 475 Selected Topics 3 credits

This course is offered according to student demand and instructor availability/expertise. A variety of topics related to ethnic and cultural areas will provide curriculum enrichment on an ongoing basis.

AIS 485 Workshop 1-6 credits

A brief, intensive or hands on experience based in Indigenous knowledge and methods. Variable topics.

AIS 497 Internship 1-12 credits

Field experiences in settings appropriate to the discipline of American Indian Studies. Requires advanced standing in American Indian Studies and consent of supervising faculty. Diverse Cultures: Gold

AIS 499 Individual Study 1-6 credits

Allows for an advanced level pursuit of special projects of research on an independent basis. Requires coordination with a faculty member.

Anthropology

ANTH 101 Introduction to Anthropology 4 credits

This course surveys human biological and cultural diversity through time and space. You will learn about questions like: "how did humans evolve?" and "how do anthropologists collect and interpret information about human beings and their ancestors?" Diverse Cultures: Purple

ANTH 102 Ancient Peoples 4 credits

A general survey of the evolution of human society from the earliest times to the development of written languages. Topics include the evolution of tools, the agricultural revolution, and the origins of urban life.

ANTH 120 Forensic Science: An Anthropological Approach 4 credits

This anthropology course explores the areas of anatomical forensic science. Students will learn the techniques and methodology involved in collection, preservation, and analysis of evidence pertaining to human remains. The course will include such subjects as analysis of skeletal trauma, victim identification, bite-mark analysis, and crime scene recovery methods. Ethnics and standards in medico-legal investigations will also be stressed.

ANTH 210 Introduction to Archaeology 4 credits

A comprehensive examination of modern archaeological theory methods and activities, focusing on American archaeology. Emphasis will be given to data collection, data analysis, and museology. Lab included.

ANTH 220 Human Origins 4 credits

An introduction to the study of human biological evolution and variation. This course focuses on evolutionary theory, mechanisms of evolutionary change, and the fossil record of human evolution. Lab included.

ANTH 230 Peoples and Cultures of the World 4 credits

This introduction to cultural anthropology covers cultural diversity and organization by examining several examples in detail. Both anthropological methodology and theory will be important parts of this course. Diverse Cultures: Purple

ANTH 240 Language and Culture 4 credits

Language provides not only communication but identification of oneself and one's group. Humans are extremely sensitive to language, dialect, jargon, and slang. An understanding of language and its relationship to culture is basic to any understanding of human beings. Diverse Cultures: Purple

ANTH 245 The Social Life of Swearing 4 credits

What qualifies a word as "bad"? How does profanity, cursing, and swearing evolve across time and vary across cultures? Where does the power of these "bad" words come from? What relationship do these words have to issues of gender, race, and class? This course examines the historical evolution and modern usage of obscenities to answer these questions. Diverse Cultures: Purple

ANTH 250W Portraits of Culture 4 credits

Survey of human cultures through a variety of classic and contemporary anthropological writing and film. Students write weekly reflections. Written work is shared, discussed, and revised. Diverse Cultures: Purple

ANTH 260 Vampires, Werewolves, and Zombies: Folklore of Fear 4 credits

Fear and how we depict it in popular culture. Course examines folklore traditions and how they translate in contemporary storytelling formats. Diverse Cultures: Purple

ANTH 261 Taboos, Tattoos, and T-Shirts: Culture and Body Art 4 credits

People all around the world use tattoos, piercing, makeup and dress codes as symbolic tools to represent their ideas of self, or as a means of gender, ethnicity, and class control and domination. This course looks at how people express connection to and disconnection from culture through body art practices. Diverse Cultures: Purple

ANTH 269 Anthropology of Sex 4 credits

Sex and our relationship with it. This course examines the topics of sex, sexuality, and gender by exploring the diverse range of sexual cultures of the world in the past and the present. Attention is given to the role of language, biology, culture, and the archeological record of societies' fascination with sex. Diverse Cultures: Purple

ANTH 280 Engaged Anthropology 3 credits

Engaged Anthropology is a multidimensional service-learning course designed to facilitate real-world learning experiences for students on broad social issues: practice a variety of anthropological concepts, theories, and methods; and provide service to the local community. Diverse Cultures: Gold

Prerequisites: ANTH 101, ANTH 230, or instructor Permission.

ANTH 285 Special Topics 1-3 credits

Courses to be offered just one time or on an irregular basis according to topic demand for a general interest, sophomore level course.

ANTH 290 Exploratory Studies 1-3 credits

Individual study at an introductory level on the topic of student's choice. Designed for students who wish to pursue independent study at the freshman-sophomore level rather than the more advanced level of the 499 individual study.

Prerequisites: Consent

ANTH 300 Introduction to Anthropology Methods 4 credits

This course examines the methodologies of all four fields of Anthropology. Students will gain practical experience in various methods that professionals utilize on a regular basis within the discipline. Discussions of the issues surrounding various anthropological methods will be part of this course.

Prerequisites: ANTH 101

ANTH 311 Ancient Egypt 4 credits

An in-depth study of ancient Egypt, focusing on the relationship between cultural development and the unique Egyptian environment of the time. Emphasis will be placed on the interpretation of archaeological discoveries in the area.

ANTH 323 Primate Behavior 4 credits

An examination of the ecology, behavior and biology of living primates.

Prerequisites: ANTH 101 or ANTH 220 or consent

ANTH 331 Environmental Anthropology 4 credits

This course focuses on studying the diversity of human societies using environmental approaches such as evolutionary/ecological perspectives and systems modeling. Case studies will be drawn from Native American cultures.

ANTH 332 Anthropology of Religion 4 credits

The variability and universality of human religious expression are explored in specific cross-cultural contexts. Diverse Cultures: Purple

ANTH 333 Ethnographic Film 3 credits

This course emphasizes the wealth of ethnographic information which may be captured by visual media. You will learn how to interpret the final product and how to recognize the limitations of visual presentations.

ANTH 335 People and Cultures of Sub-Saharan Africa 4 credits

A survey of the people and cultures of Sub-Saharan Africa examining the rich sociocultural diversity of the continent over time.

ANTH 340 Language and Power 4 credits

Language is powerful. What we say, how we say it, where we say it, and to whom we say it matters. This course explores the connection between power, language, performance, and identity. The relationships between language, gender, sexuality, race, ethnicity, and socioeconomic class are explored by investigating historical and present-day sources of language practices and events. Diverse Cultures: Purple

ANTH 360 Business Anthropology 4 credits

This class focuses on the application of anthropology in the business and organizational domains using a cultural lens. It will provide students with a clearer view of the culture of the business world as well as tools to aid in understanding the business culture and that of their clientele.

ANTH 361 Foodways 4 credits

Exploring culture through the foods we eat, preparation practices, and historic implications of food in daily life. We will examine a sampling from hunter-gathers, agricultural practices and animal husbandry, mass production, and the food industry to better understand cultural practices from around the globe. Diverse Cultures: Purple

ANTH 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one semester and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

ANTH 410 Archaeology of Minnesota 4 credits

A detailed study of Minnesota archaeology from ca. 12,000 years ago to ca 1900, with a focus on diverse and changing Native American populations.

ANTH 411 Archaeology of Native North America 4 credits

A survey of current knowledge about the prehistoric Native American inhabitants of North America from ca. 15,000 years ago until ca. 1900. Topics will focus on the processes of cultural development, change, and disruption by Euro-American influences.

ANTH 412 Archaeology of Latin America 4 credits

A detailed study of Latin American archaeology from ca. 12,000 years ago to ca.1900, with a focus on diverse and changing Native American populations.

ANTH 414 Museology 4 credits

A review of the history and philosophy of museums, the legal and ethical issues impacting museums, the nature and treatment of collections, creation, exhibition and exhibit design, the role of museums in education, museum personnel and financial management, and museums in the technological/electronic age.

ANTH 415 Cultural Resource Management 4 credits

Review of how cultural resources are being preserved and managed under current laws and regulations. Emphasis on examination of conservation, preservation and rescue methods in modern archaeology, and problems and issues in historic preservation and resource management.

Prerequisites: ANTH 101, ANTH 210 or consent

ANTH 416 Archeological Methods 4 credits

An intensive exploration of how to identify, catalogue, and curate archeological materials in a laboratory setting. Topics will include lithics, pottery, faunal, floral, metal, and other materials as well as data structure and recordation.

ANTH 417 Quaternary Environments and Climatic Change 4 credits

An interdisciplinary investigation into Quaternary environmental/climatic change and the impact of change on the behavior and evolution of humans. This course has three segments: 1) an examination of natural systems responsible for climatic change, the impact climatic fluctuations have on Earth systems, timing of Quaternary changes, evidence of climatic/environmental change from spatially distant, climatically distinct environments; 2) investigation into worldwide evidence of human evolution, global dispersion, and adaptation to environmental systems; introduction to various methodological approaches in Quaternary archeologic, geomorphic, and climatic studies. Focus is on proxy records used for climate/environmental reconstruction, archeologic/geomorphologic field methods, geochronologic dating methods.

Prerequisites: GEOG 101, ANTH 210; Students are strongly encouraged to take Geog 315 or 4/515 before enrolling. Geol 121 can be substituted for Geog 101 with instructor permission.

ANTH 418 Agricultural Systems and Environmental Change 4 credits

This course examines the history of agricultural systems in worldwide perspective, with an emphasis on understanding their social and environmental contexts and the effects on them of climate change. Case examples will highlight the conditions under which agricultural systems emerge, thrive, and fail, and the impacts of these processes on human populations.

ANTH 420 Human Osteology 4 credits

An advanced examination of the human skeletal system and the application of this information in the fields of bioarchaeology, paleoanthropology and forensic anthropology. This course features hands-on identification and analysis of human skeletal material, with an emphasis on laboratory techniques.

ANTH 421W Health, Culture, and Disease 4 credits

Cross-cultural examination of healing traditions, health beliefs and the impact of social, economic and political factors on the health of peoples in different cultures around the world and among diverse ethnic groups within culturally plural societies, including the United States. Diverse Cultures: Purple

ANTH 422 Forensic Anthropology 4 credits

This course will acquaint students with the application of human osteological techniques in civil and criminal investigations, including assessment of the recovery scene, determination of identity and analysis of evidence relating to cause and manner of death.

Prerequisites: ANTH 420

ANTH 424 Bioarchaeology 4 credits

Bioarchaeology focuses on the diet, health, and occupations of past populations through the analysis of their skeletal remains. Readings and lab work will promote a practical understanding of the methods used in the discipline.

ANTH 425W Anthropology of Death 4 credits

The biological and cultural aspects of death, as seen anthropologically, are the focus of this course. Mortuary behavior, ritual, and treatment of the human body will be addressed both temporally and cross-culturally.

ANTH 430 Peoples and Cultures of Latin America 4 credits

The contemporary peoples and cultures of Mexico and Central and South America. Emphasis is on cultural patterns and contemporary issues of the region.

Prerequisites: ANTH 101, ANTH 230, or consent

ANTH 431 Applied Cultural Research 3 credits

This course introduces concepts and methods of applying socio-cultural understanding to contemporary problems to bring about the empowerment of affected people. Case/field studies and other research methods in social sciences will change with special attention to its effect on disadvantaged groups of people. Students will also design their own applied projects.

Prerequisites: ANTH 101, ANTH 230, or consent; ETHN 100, ETHN 101, or ETHN 150 or consent.

ANTH 432 Kinship, Marriage and Family 3 credits

Kinship is the most basic principle of organization for all human societies. The course analyzes the main theories and methods of studying social organization, and explores cross-cultural variations in kinship, marriage and family systems.

ANTH 433 Anthropology of Gender **4 credits**
Major anthropological theories of gender relations are read, discussed, and applied to a variety of contemporary ethnographic case studies.

Prerequisites: ANTH 101, ANTH 230, or consent

ANTH 436W Anthropology of Aging **4 credits**
A cross-cultural examination of the aging process, status, and treatment of elders around the world. Diverse Cultures: Purple

Prerequisites: ANTH 101, ANTH 230, or ANTH 220, or consent

ANTH 437 Applied Anthropology **4 credits**
Examines the practical applications of anthropological knowledge to problem-oriented research and the problems of directed sociocultural change among contemporary populations. Selected projects and case studies are used to illustrate the complexity of applied sociocultural change.

Prerequisites: ANTH 101, ANTH 230 or consent

ANTH 438W Anthropological Theory **4 credits**
Examination of the intellectual history of anthropology from its nineteenth century roots to today's current theoretical trends. Students will learn about the major schools of thought in anthropological theory and practice critical examination of their applications.

ANTH 439 Qualitative Research Methods **4 credits**
The aim of this course is to make students methodologically literate. Students will learn how to develop research designs that rely on qualitative research methods such as participant observation. They will learn how to apply these methods by participating in small scale studies of human behavior. Some quantitative methods will also be discussed. Students will learn critical examination of published data and conclusions.

Prerequisites: ANTH 101, ANTH 220 or consent

ANTH 440 Native American Cultures of North America **4 credits**
American Indians adapted to environmental systems in North America with cultures ranging from small groups of foragers to cities supported by intensive agriculture. This course presents a variety of perspectives of this cultural diversity from the Ice Age to the 20th century.

ANTH 443W People and Cultures of East Asia **4 credits**
Survey of East Asian cultural region. Cultural diversity, change and continuity examined in China, Japan and Korea through institutions and cultural settings. Focus includes how modern East Asian societies face internal social changes and their changing international status. Diverse Cultures: Purple

ANTH 475 Senior Thesis **3 credits**
A faculty-supervised, student-designed capstone project for the major. Students will take ANTH 475 after completing ANTH 300. The nature of the student's thesis will be determined jointly by the student and their advisor. The capstone project is a written thesis involving writing, laboratory work, fieldwork or various combinations. Students must present completed thesis in a public forum.

Prerequisites: ANTH 300

ANTH 480 Fieldwork: Archaeology/Ethnology **3-6 credits**
Field experience in which method and theory are learned through participation in an ongoing field project.

Prerequisites: Consent, or one of: ANTH 101, ANTH 102, or ANTH 220

ANTH 485 Topics in Anthropology **1-3 credits**
This course allows faculty the flexibility to consider the challenges of new developments in anthropology. Content will vary from one course to the next. Students may take the course, with the permission of the instructor, more than one time.

ANTH 486 Workshop **1-3 credits**
A brief intensive hands-on introduction to an anthropological topic usually as it applies to a particular issue or skill. Topics vary but might include: Understanding that race is not a scientific concept; combating racism and ethnocentrism; participant observation methods; culture shock; cultural diversity and communication; forensics; cultural resource conservation. Pre-req: Depends on topic and instructor.

Prerequisites: Depends on topic and instructor

ANTH 491 Archaeology Laboratory **1-3 credits**
An introduction to archaeological laboratory techniques and museological practice, through participation in the various processes involved.

ANTH 492 Biological Anthropology Lab **1-3 credits**
Guided advanced laboratory work in biological/physical anthropology.

Prerequisites: Consent

ANTH 493 Ethnology Lab **1-3 credits**
Individual projects are done in close coordination with faculty member.

Prerequisites: Consent

ANTH 494 Linguistic Lab **1-3 credits**
Individual projects are done in close coordination with faculty member.

ANTH 497 Internship **1-12 credits**
Positions may vary considerably, but all involve actual working conditions in various field positions such as museums, state parks, archaeological excavations and agencies.

Prerequisites: Consent

ANTH 498 Internship: Teaching Anthropology **1-3 credits**
Students will work with faculty in the preparation and delivery of course materials in lower division undergraduate courses. Lecture/lab prep, delivery, use of multimedia, leading discussions and exercises. Open to senior majors and minors in good standing.

ANTH 499 Individual Study **1-6 credits**
A specialized topic of the students' choices. Coordination with a faculty member is necessary.

Prerequisites: Consent

Applied Organizational Studies

AOS 101 Preparing for Leadership Careers 3 credits

This course is recommended as a first semester course for students who are new to the University and to the Applied Leadership Program. The purpose of the course is to assist students with the transition to the University in an online program environment. The course provides students with an overview of the University, its online program resources, and the College of Social and Behavioral Sciences. This course will introduce students to leadership and organizations, build student success skills and develop the professional skills needed for future job placement.

AOS 301 Introduction to Applied Leadership 3 credits

Topics include world economics and their implications for the labor force, critical and creative thinking, leadership, and portfolio assessment. Required for admission to the Applied Organizational Studies program.

AOS 320 Applied Leadership Communication Workshop 3 credits

The focus in this course is on communication within organizations (including virtual environments), workplace engagement in virtual teamwork and the application of critical and creative thinking resulting in organizational innovation. The course also engages students in an exploration of the role of social organizing and the impact of networking on organizational growth and sustainability.

AOS 380W Applied Leadership Workshop 2 3 credits

The focus in this course is on critical thinking, decision-making, and leadership in contemporary organizational environments. The course also explores the concept of followership and power distribution, and organizational adaptation due to technological and global economic change. Students will also participate in an applied research project in an approved organization of choice.

AOS 420 Applied Leadership & Decision Making 3 credits

The course focuses on contemporary organizational issues and the concept of change in organizational design and development. Subject matter includes the use of causal thinking and econometric measurement, effectuation and entrepreneurial thinking, and the role of mission and vision. Students will complete a project-based exploration of the financial and resource aspects of return on investment comparing the effectual and causal perspectives on an organizational change.

AOS 430 Global Social Entrepreneurship 3 credits

This course is an exploration of the rapidly growing social entrepreneurship in the United States, the developing world, other developed countries, and in transnational contexts. Social entrepreneurs use business methods to help solve social and environmental challenges otherwise ignored or missed by traditional commerce. This course also includes “social intrapreneurship” where employees in existing companies similarly are developing new income opportunities for their firms by addressing social and environmental challenges in a profitable, scalable manner.

AOS 440 Social Enterprise 3 credits

The course focuses on the development of social enterprise strategies, public and non-profit organizational innovation and the critical thinking required to solve complex social problems on a local and global scale through a sustainability and equity lens. This course serves as an elective for Applied Leadership majors.

AOS 488 Professional Studies Portfolio 2 credits

Capstone project in which the student creates a portfolio that demonstrates the student’s achievement in the core competencies of the program. Portfolio to be presented to a committee.

Prerequisites: AOS 301

AOS 492 Selected Topics 3 credits

Topics vary as announced in class schedule. May be retaken for credit if topic varies.

AOS 499 Individual Study 1-12 credits

A specialized topic of the students’ choice. Coordination with a faculty member is necessary.

ART

ART 100 Elements and Principles of Art 3 credits

2-D visual problem solving and art-making strategies using the elements and principles of design. For elementary education majors and general education.

ART 101 Design Foundations 3 credits

For art, art history and art education majors.

ART 103 Three-Dimensional Design 3 credits

Introduction to concept and processes related to the visual and physical organization of three-dimensional form and space.

ART 110 Drawing Foundations 3 credits

Introduction to traditional drawing techniques and concepts.

ART 160 Introduction to Visual Culture 3 credits

Introduction to Western and non-Western visual arts and the variety of methods by which art is understood. These may include art appreciation, art criticism, the history of art, popular culture, and aesthetic awareness. Diverse Cultures: Purple

ART 202 Introduction to Digital Media 3 credits

This graphic design course is an introduction to digital media technology as a creative tool for the development of visual expression. The course is taught using the Mac OS and explores vector and bitmap image making.

ART 210 Drawing 3 credits

Continued exploration of drawing techniques and concepts.

Prerequisites: ART 110

ART 212 Life Drawing 3 credits

Experience in drawing from the human figure.

Prerequisites: ART 110

ART 220 Graphic Design I 3 credits

This course explores the basic principles of graphic design. Emphasis is placed on developing an awareness and effective use of type, image, and symbol. Students focus on the design process as a way to develop and refine design solutions.

Prerequisites: ART 202

ART 225 Developing Creativity: Approaches and Techniques **3 credits**

ART 225 offers art experiences with a focus on working with children. The class will be introduced to methods and materials that work best with these populations. The course includes an introduction to a broad scope of artists and artworks that reflect our culturally diverse country, as well as the global nature of our world. Visual Culture, work of fine art, museum analysis, installations, performances, video art, and graffiti will be discussed. Students will participate in hands-on art making activities through studio experiences, they will write and reflect on the outcomes, and they will participate in critiques and discussions.

ART 231 Mixed Media **3 credits**

Multimedia art exploration is a problem solving art studio experience involving the use of a variety of traditional and non-traditional art materials.

ART 240 Painting **3 credits**

Beginning experience with oil and/or acrylic paint. Emphasis upon technical and conceptual development.

Prerequisites: ART 100 or ART 101, ART 110 or consent

ART 245 Watercolor **3 credits**

Introduction to basic techniques in watercolor.

Prerequisites: ART 100 or ART 101, ART 110 or consent

ART 250 Ceramics: Beginning Wheel **3 credits**

An introduction to basic wheel throwing techniques exploring the potential of clay as a creative and expressive material.

ART 251 Ceramics: Beginning Handbuilding **3 credits**

An introduction to basic sculptural hand building techniques exploring the nature of clay as a creative-expressive medium.

ART 260 Art History Survey I **3 credits**

Introduction to art history from prehistoric and ancient cultures through the Middle Ages. Includes representative examples and styles of art and architecture of Western (Europe and the Near East) and non-Western cultures (China, India, Japan, Southeast Asia, Africa, Mesoamerica, South America, North America, Australia). Diverse Cultures: Purple

ART 261 Art History Survey II **3 credits**

Lecture-based survey of the Art and Architecture of both Western and non-Western countries from the thirteenth through twentieth centuries.

ART 265W Art As Politics **3 credits**

This course analyzes relationships between art and politics from ancient times through today, exploring uses of art from persuasion to overt propaganda in visual arts and architecture. It will deal with diverse cultures, covering material from a global perspective.

ART 270 Printmaking: Beginning Silkscreen and Lithography **3 credits**

Introduction to silkscreen and lithography printmaking processes including silkscreen, monotype, and plate lithography.

ART 271 Printmaking: Beginning Intaglio/Relief **3 credits**

Introduction to intaglio and relief printmaking processes including collagraph, etching, relief carving, and engraving.

ART 275 Introduction to Photography **3 credits**

Introduction to the techniques and expressive potential of both digital and darkroom photography. Topics include basic camera controls, lighting, composition, editing, and fine art printing in the digital lab and darkroom. A digital camera with manual controls of aperture and shutter speed is required for part of the semester (a film camera will be provided).

ART 280 Sculpture **3 credits**

Exploration of the visual and physical organization of three-dimensional form and space through problems employing various media and processes.

Prerequisites: ART 103 or consent

ART 285 Introduction to Installation **3 credits**

This studio course familiarizes students with the basic concerns of installation art, including relationship to site and audience. A variety of materials and approaches will be explored. Environmental impact, health, and safety will be addressed. In addition to studio work, historical and contemporary examples will be discussed to provide context and encourage awareness of the disciplines past and present potential.

Prerequisites: ART 103 or consent

ART 294 Topics **3 credits**

Lecture/discussion/studio course on a selected area of discourse relating to the study of Art History, Art Criticism, Art Education or Art Studio. May focus on a specific artist, style period, cultural group or technical or methodological problem.

ART 302 Interaction Design **3 credits**

Introduction to product design as it relates to user interface (UI) and user experience (UX) design from a visual communication design perspective. Applicable visual prototypes will encompass various situations that may range from icon wayfinding systems to mobile app designs. The course will explore issues of differing philosophical perspectives of technology as a tool, a medium, and/or an environment.

Prerequisites: ART 202

ART 304 Typography I **3 credits**

This course investigates the use of letterforms in the message making process. Topics include historical overview of letter development, type terminology, type and image relationships, and technical and aesthetic applications of type.

Prerequisites: ART 202

ART 310 Drawing **3 credits**

This course encourages experimental approaches that build on drawing skills developed in ART 110 and ART 210. Formal and conceptual issues will be addressed as students pursue individualized subject matter. Course may be repeated.

Prerequisites: ART 210

ART 320 Graphic Design II **3 credits**

This course expands upon the beginning and intermediate design experience. Emphasis is placed on concept development and the exploration of meaningful solutions applied across a variety of media. The technical skills of preparing work for production will be strengthened.

Prerequisites: ART 220, ART 302, ART 304

ART 324 Concept and Image 3 credits This course strengthens students' conceptual skills within the context of graphic design. The course emphasizes various techniques for generating imagery to more effectively communicate ideas. Prerequisites: ART 220, ART 302, ART 304	ART 380 Sculpture 3 credits Investigation of three-dimensional form, space and media in search of a personal aesthetic statement. Must be taken twice before advancing to ART 480. Prerequisites: ART 280
ART 340 Painting 3 credits Intermediate painting. Emphasizing individual creative development. Must be taken twice before advancing to ART 440. Pre: ART 240 or consent F, S Prerequisites: ART 240 or consent	ART 385 Intermediate Installation 3 credits This studio course explores a wide range of material and conceptual strategies to site-specific work. Personal approaches will be stressed as students develop and implement their own installations. Environmental impact, health, and safety will be addressed. In addition to studio work, the course will cover a variety of installation artists and related readings. Must be taken twice before advancing to ART 485. Prerequisites: ART 285 or consent
ART 350 Intermediate Ceramics 3 credits An intermediate course emphasizing personal exploration and creative research relating to hand building, molding processes and/or the potter's wheel. Must be taken twice before advancing to ART 450. Prerequisites: ART 250 or ART 251	ART 391 Portfolio Review 0 credits Required of all B.F.A. majors before taking 4XX advanced studio specialization sequence to continue in program. Prerequisites: ART 104
ART 370 Printmaking: Intermediate Studio 3 credits Continued exploration of intaglio, lithographic, relief and silk-screen processes. Must be taken twice before advancing to ART 470. Prerequisites: ART 270 or ART 271	ART 392 Portfolio Review: Graphic Design 0 credits Required of all B.F.A. majors with an emphasis in Graphic Design before taking 4XX advanced design sequence courses to continue in program. Prerequisites: ART 220, ART 302, ART 304
ART 372 Digital Printmaking 3 credits This is an intermediate course focusing exclusively on materials, technique, processes, equipment, and safety in contemporary digital printmaking processes. Prerequisites: ART 202, ART 271	ART 400 Graphic Design Special Topics 3-6 credits This advanced course investigates design related topics in greater depth. Prerequisites: ART 392
ART 375 Intermediate Black and White Photography 3 credits This intermediate course builds on basic knowledge learned in ART 275. Topics covered include medium and large format film cameras and film development, film scanning, as well as digital editing, manipulation, and fine art digital print and darkroom print output. Additionally, we will discuss lighting, composition, creative problem solving, and creating a cohesive series. In rotation with ART 377. Prerequisites: ART 275	ART 402 Motion Graphics 3 credits This course is an advanced study of motion design. The study and exploration of digital narrative and non-linear storytelling are key components. Students build on existing motion design skills to create conceptually and technically advanced time-based solutions. This course is repeatable. Prerequisites: ARTR 392
ART 377 Intermediate Digital Photography 3 credits This intermediate course builds on basic knowledge learned in ART 275. Topics covered include digital camera operations, digital editing, manipulation and layering of images, and fine art digital print output. Additionally, we will discuss lighting, composition, creative problem solving, and creating a cohesive series. In rotation with ART 375. A digital SLR camera is required. Prerequisites: ART 275	ART 404 Typography II 3 credits This course is an advanced study of typography. Students build on existing type sensibilities while exploring traditional and non-traditional applications of type. Prerequisites: ART 220, ART 302, ART 304
ART 378 Experimental Video 3 credits Introduction to the techniques and expressive potential of digital video as an art medium. We will cover capturing video, editing using current software applications, and final output and display of video work. We will build formal and conceptual skills to explore the possibilities of digital video as art, and explore the history and contemporary examples of video in the art world. Access to a digital SLR camera with video/movie capabilities is required (most SLRs have this).	ART 405 Self-Initiated Design Workshop 3 credits This is an advanced-level course that aims to strengthen designers' sense of curiosity, creativity, and confidence in generating self-initiated work. Students explore their own areas of interests within the context of graphic design and creative problem solving. Prerequisites: 392
	ART 406 Web Design I 3 credits Concentrated study of front-end web design standards as it pertains to typography, graphics, creativity, and strategic planning. Students will prototype interactive media through the utilization of visual design systems and UI/UX methodologies. Prerequisites: ART 220, ART 302, ART 304

ART 410 Drawing Workshop 3-6 credits Continued in-depth exploration of drawing techniques and concepts. May be repeated. Prerequisites: ART 310	ART 440 Painting 3-6 credits Advanced painting. Continued development of a focused individual expression. May be repeated. Prerequisites: ART 340
ART 417 Medieval Art and Architecture 3 credits Introduction to art and architecture of Western Europe, the Byzantine Empire, and the Islamic world, from the second to the fifteenth centuries. Examination of representative works of art and major styles of Christian, Jewish, and Islamic cultures, including the Romanesque and Gothic periods. Prerequisites: ART 260 or consent	ART 444 Typography III 3 credits This course continues students' advanced study of typography. Emphasis is placed on designing complex typographic systems, multiple page publications, and expressive type-based solutions. Prerequisites: ART 392, ART 404
ART 419 Gender in Art 3 credits Historical survey of the representation of gender with comparison of the artistic efforts of males and females and examination of art used to present gender-based issues including homosexuality, feminism, censorship and pornography. Prerequisites: ART 261 or consent	ART 450 Advanced Ceramics 3-6 credits An advanced course which emphasizes individual research in technical, aesthetic and conceptual considerations. May be repeated. Prerequisites: ART 350
ART 420 Graphic Design III 3-6 credits This course is split between engagement in advanced design problems and preparation for entry into the graphic design field. This course is repeatable. Prerequisites: ART 320, ART 404, ART 406	ART 460 Ancient Art 3 credits Introduction to the art and architecture of the ancient era in its historical and cultural frameworks. Examination of representative works of art and major styles of ancient Mesopotamian, Egyptian, Aegean, Greek, Etruscan, and Roman cultures. Prerequisites: ART 260 or consent
ART 421 Art Methods Elementary School 3 credits Art expression related to child growth, development and teaching strategies. (Required for student teaching and certification.) Junior status or consent required. Prerequisites: ART 100 or ART 101, Jr. status or consent	ART 462 Renaissance Art 3 credits Origins and development of Northern and Italian Renaissance art and architecture as an expression of historical, cultural and religious issues. Prerequisites: ART 261 or consent
ART 424 Art Education for the Exceptional Child 3 credits Current theory and practice of teaching art to students with physical, emotional, and developmental exceptionalities. Includes experiences in elementary classrooms. Prerequisites: ART 421	ART 463 Mannerism to Romanticism 3 credits Historical survey of art, architecture and urban planning in Europe and America from the late sixteenth to mid-nineteenth century: Mannerism, Baroque, Rococo, Neoclassicism and Romanticism. Prerequisites: ART 392, ART 406
ART 426 Art Methods Secondary School 3 credits The characteristics of art expression and evaluation at the junior and senior high level: the status, curricula and strategies of teaching. (Required for student teaching.) Prerequisites: ART 421	ART 464 Art Museum and Exhibition Studies 3 credits The study of art museum history, theory and practice, including ethics, collecting, and display. Alongside these studies, students will conceive and realize an exhibition in order to further develop knowledge of and experience in the field. Prerequisites: ART 260, ART 261
ART 434 Arts Administration 3 credits Theoretical and practical aspects of administering arts organizations. Examines the management, budgeting, marketing and administration of arts programs and organizations in the postmodern era.	ART 466 Realism to Postmodernism 3 credits Historical survey of art, architecture and urban planning in Europe and America from the mid-nineteenth century to the present: Realism, Impressionism, Expressionism, Surrealism, Abstract Expressionism, Minimalism, Op Art, Pop Art, and Post-modern issues and trends. Prerequisites: ART 261 or consent
ART 436 Web Design II 3 credits Exploration of front-end web design as a graphic and visual communication design medium. Emphasis is placed on research discovery, ideation, information architecture, UI/UX experience, and designing for emotion. Prerequisites: ART 392, ART 406	ART 467 Art of the Islamic World 3 credits Historical survey of art and architectural developments from Islam's origins through the twentieth century. Course focuses on contextualizing monuments, paintings, and other arts from various regions around the world. Diverse Cultures: Purple

ART 468 Design: History and Theory **3 credits**
Survey of Graphic Design, Industrial Design and Architecture from historical and theoretical perspectives. Design issues examined from formal and contextual points of view, using analysis strategies that consider style, composition, historical context, functional/propagandistic significance and communicative ability.

ART 469 Asian Art **3 credits**
Historical survey of the art and architecture of China, India, Korea and Japan from pre-history to the 20th century. Diverse Cultures: Purple
Prerequisites: ART 260, ART 261 or consent

ART 470 Printmaking: Advanced Studio **3-6 credits**
Continued investigation of advanced print making techniques and concepts. May be repeated.
Prerequisites: ART 370

ART 475 Advanced Photography Studio **3-6 credits**
Expanding technical knowledge and visual awareness while building a portfolio in selected areas. May be repeated.
Corequisites: Two 300-level photography courses are required.

ART 477W Roots of Modern Islamic Art **3 credits**
Investigation of developments in sacred and secular art and architecture in various regions of the world, exploring themes such as nation-building, modernization vs. tradition, post colonialism among others, since the 19th century. Diverse Cultures: Purple

ART 480 Sculpture **3-6 credits**
Continuing development of a strongly personal means of aesthetic expression in three dimensions. May be repeated.
Prerequisites: ART 380

ART 485 Advanced Installation **3-6 credits**
This studio course focuses on the planning and implementation of site-specific work. Students' personal interests will be paramount in the development of works that address site and audience. Professional practices necessary to carry out installations will be emphasized, including proposal development, project planning, and documentation. Environmental impact, health, and safety will be addressed. The course will cover a variety of installation artists and related readings. May be repeated.
Prerequisites: ART 385 or consent

ART 492 Art History Seminar **1-6 credits**
Specific problems in art emphasizing both individual research and contributions to the seminar group on advanced, in-depth topics.
Prerequisites: Consent

ART 494 Topics **3 credits**
Lecture/discussion/studio course on a selected area of discourse relating to the study of Art History, Art Criticism, Art Education or Art Studio. May focus on a specific artist, style period, cultural group or technical or methodological problem.

ART 495 Senior Exhibit **0-1 credits**
A required course in all art major degree programs. Students plan and present art work in an exhibition. Cannot be taken same semester as student teaching.
Prerequisites: Consent

ART 496 Art History Senior Thesis **1 credits**
Capstone writing project. Advanced study and research required. Topic of the senior thesis determined jointly by the student and the faculty advisor. Required for art history specialization and art history major. A less expansive project is required for the art history minor.
Prerequisites: Consent of advisor

ART 497 Internship **1-6 credits**
Field experience in professional settings relating to the specialization: graphic design, museum or arts administration, etc. Pre: Jr. standing with consent of advisor and department chair.
Prerequisites: Jr. standing with consent of advisor and department chair.

ART 499 Individual Study **1-6 credits**
Advanced level pursuit of special projects of research on an independent basis. Requires contractual agreement in art office for registration.
Prerequisites: Consent

Astronomy

AST 101 Introduction to Astronomy **3 credits**
Broad survey of astronomy: the night sky, seasons, moon phases, eclipses, light, telescopes, stars, stellar evolution, galaxies, cosmology, the solar system.

AST 102 Introduction to the Planets **3 credits**
Survey of our solar system: the sun, planets, moons, asteroids, comets, and meteoroids; history of the discovery and exploration of the solar system.

AST 115 Life in the Universe **2 credits**
The probability of extraterrestrial intelligent life; the chemical basis of life; planetary environments; habitable zones; the Drake equation; UFOs; space travel; interstellar communication; limits on technical civilizations. General Education Categories 2 and 3.

AST 115W Life in the Universe **2 credits**
The probability of extraterrestrial intelligent life; the chemical basis of life; planetary environments; habitable zones; the Drake equation; UFOs; space travel; interstellar communication; limits on technical civilizations.

AST 125 Observational Astronomy **3 credits**
Techniques for observing with the naked eye, binoculars and small telescopes; constellation and star identification; use of star atlases and handbooks; observations of stars, binaries, clusters, nebulae, planets and the sun and moon, etc. Students will also learn how astronomical theories are formulated and tested by observing phenomena in the sky. Evening observing labs required.

Prerequisites: AST 101

AST 201 Spherical Astronomy **2 credits**
The celestial sphere; coordinate systems; sidereal and solar time; diurnal motion; precession; proper motion; refraction; aberration; parallax. Requires a background in trigonometry.

AST 215 Astronomy and Astrophysics I **4 credits**
Celestial mechanics; gravitational and tidal forces; stellar motions and parallax; radiation and matter; magnitudes and stellar spectra; binary stars and stellar masses; stellar structure and evolution.

Prerequisites: MATH 121 and PHYS 221

AST 225 Astronomy and Astrophysics II **4 credits**

Stellar endpoints; close binary systems; variable stars; the Milky Way; normal galaxies; galactic evolution; active galaxies and quasars; cosmology.

Prerequisites: AST 215, MATH 122, PHYS 222

AST 351 Telescope Operations **2 credits**

Operating the 0.5-meter telescope; operating the BRC 250 astrograph; learning to install and operate ancillary equipment for both telescopes.

Prerequisites: AST 201 and AST 215, Consent

AST 353 Photometry I **2 credits**

Photometric systems; observational techniques of point-source photometry; methods of data reduction; interpretation of data.

Prerequisites: AST 215

AST 354 Photometry II **2 credits**

Observations of extended sources; photometric calibration of extended sources; use of secondary standard stars.

Prerequisites: AST 353

AST 355 Astrometry **2 credits**

Reduction of digital images to determine positions, proper motions, and parallaxes of stars; analysis of errors.

Prerequisites: AST 201 and AST 215

AST 357 Spectroscopy **2 credits**

Line identification; radial velocity determinations; spectral classifications.

Prerequisites: AST 225

AST 493 Undergraduate Research **1-6 credits**

Students will conduct supervised research in astronomy.

Prerequisites: Consent

AST 495 Selected Topics **1-4 credits**

A course in a particular area of astronomy not regularly offered. May be repeated for credit on each new topic.

Prerequisites: Consent

AST 499 Individual Study **1-8 credits**

Individual study under the guidance of an astronomy faculty member.

Prerequisites: Consent

Automotive Engineering

AE 102 Introduction to Automotive Engineering **1 credits**

This course is designed to provide students new to the major an opportunity to explore issues relevant to the university, department, and career field. The goal is to provide an open forum for discussion about transitioning to college life, and to promote greater self-awareness, growth, and understanding as a scholar, individual, and global citizen. Over the course of the semester, the student will investigate college and department experiences holistically, which will allow them the ability to make informed decisions paving the way for a richer, fuller college career.

AE 160 Automotive Systems **4 credits**

This course is centered on the theory, operation and service of the systems found in modern automobiles. Lectures and demonstrations cover the course topics and open lab sessions allow students to practice procedures on their own vehicles in the completion of course assignments.

AE 261 Automotive Driveability & Diagnosis **4 credits**

This course focuses on the functionality of an engine's mechanical, ignition, fuel, and emission systems using a systems approach to diagnose problems. Test equipment used in the course includes: fuel and fuel system; emission system; ignition; and mechanical diagnostic equipment.

AE 262 Automotive Computers and Electronics **4 credits**

This course is centered on the theory, components, and diagnostic procedures related to modern automobile electrical and electronic systems. The major emphasis of the course involves the computer, sensors, and actuators as used in vehicles to control the ignition, fuel, emission, ABS, and chassis systems.

Prerequisites: EET 113, AE 160, AE 261

AE 280 Data Acquisition and Analysis **3 credits**

This is an introductory course to graphical programming and data acquisition. Fundamental programming concepts are introduced including variables and data types, conditions, loop structures, functions, and data file input/output. Students will learn how to use data acquisition equipment, acquire and analyze signals, and present results.

Prerequisites: EET 113, MATH 121

AE 334 Fluid Power **3 credits**

This course focuses on fluid (both hydraulic and pneumatic) power systems; including, physical properties of fluid, force, pressure, pressure head, energy, power, efficiency, losses, and applications of the laws of continuity, energy conservation, Pascal and Bernoulli laws in fluid power systems; analysis, usages, troubleshoot, and applications of pumps, cylinders, motors, shock absorbers, valves, fittings, reservoirs, accumulators, pressure gauges, flowmeters, venturi meters, pitot tubes, manometers, pressure intensifiers, application of ideal gas laws, usages and applications of compressors, pneumatic actuators, both pneumatic and hydraulic circuit designs and analyses. It also includes labs on pumps, cylinders, motors, and measuring devices.

Prerequisites: MATH 121, PHYS 221

AE 364 Chassis Design and Testing **4 credits**

This course focuses on the theory and design of chassis systems as well as the evaluation and testing of these systems. Fundamentals of tires, suspension, brakes, vehicle dynamics, and other chassis systems are covered. Hardware and software tools are used for the evaluation of physical and simulated systems.

Prerequisites: MATH 121, PHYS 221

AE 366 Automotive Thermodynamics & Engine Design **3 credits**

This course focuses on the study of thermodynamics as it relates to internal combustion engines and their design. Static and dynamic engine measurements are thoroughly covered as well as their impact by various engine hardware configurations. Thermochemistry topics are covered including fuel characteristics, mixture ratios, emission characteristics, and combustion fundamentals.

Prerequisites: MATH 121, PHYS 221. **Select One Course:** CHEM 191 or CHEM 201

AE 387 Junior Design Project **2 credits**

An examination of the engineering design process and research along with a review of topics such as ethics, professionalism, teamwork, statistics, and career development/placement. This course prepares the student for AE 488, Senior Design Project I, where the design proposal, design project and final report are completed.

Prerequisites: STAT 354

AE 436 Hybrid and Electric Vehicles **3 credits**

This course covers advanced vehicle propulsion systems within the electric and hybrid electric category. Fundamentals of the operation of electric motors, controllers, inverters, and batteries utilized in electric and hybrid platforms will be covered. In addition, a significant focus will be placed on the application, integration, and testing of the systems in electric and hybrid electric vehicles.

Prerequisites: AE 280, AE 366

AE 465 Automotive Laboratory Experience **2 credits**

This course is designed to provide experience in management, organization, supervision, training, and maintenance in a laboratory environment. Small scale continuous improvement projects will be performed along with peer-to-peer training on equipment and safe working practices. Enrollment is limited. Sign up at least two semesters ahead. Permission is required.

Prerequisites: AE 364

AE 468 Automotive Research Methods **4 credits**

Automotive research techniques and equipment form the basis of this course. Environmental measurements, airflow testing, dynamometer testing, emissions measurement, and fuel efficiency testing is covered. Emphasis is placed on research procedures, data acquisition, and interpretation.

Prerequisites: STAT 354, AE 366

AE 488W Senior Design Project I **3 credits**

The first of a two-course sequence where students carry out their capstone design project. Weekly meetings are scheduled where the design team carries out the tasks required for completion. Formal design presentations and research papers are presented at the end of the course. Corequisites of MFE 324 and AE 468.

Prerequisites: MFE 341, AE 364, AE 387

AE 489W Senior Design Project II **3 credits**

The second of a two-course sequence where students build upon the first semester's work. This course culminates with the completion of the capstone project with a formal technical paper following SAE format that would be ready to be submitted for publication.

Prerequisites: MFE 324, AE 468, AE 488W

Automotive Engineering Technology

AET 102 Introduction to Automotive Engineering Technology **1 credits**

An overview of careers, technology and requirements of the Automotive Engineering Technology program. Careers in engineering technology are examined along with professional organizations and ethics.

AET 160 Automotive Technology & Systems **4 credits**

This course is centered on the theory, operation and service of the systems found in modern automobiles. Lectures and demonstrations cover the course topics and open lab sessions allow students to practice procedures on their own vehicles in the completion of course assignments.

AET 261 Automotive Driveability and Diagnosis **4 credits**

This course focuses on the engine's mechanical, ignition, fuel, and emission system using a systems approach to diagnose problems. Test equipment used in the course includes: fuel and fuel system; emission system; ignition oscilloscopes; valve refurbishing and mechanical diagnostic equipment.

AET 262 Automotive Computers and Electronics **4 credits**

This course is centered on the theory, components, and diagnostic procedures related to modern automobile electrical and electronic systems. The major emphasis of the course involves the computer, sensors, and actuators as used in vehicles to control the ignition, fuel, emission, ABS, and chassis systems.

Prerequisites: AET 160, AET 261, EET 113

AET 280 Data Acquisition and Analysis **3 credits**

This is an introductory course to graphical programming and data acquisition using LabVIEW®. Fundamental programming concepts are introduced including variables and data types, conditions, loop structures, functions, and data file input/output. Students will learn how to use data acquisition equipment, acquire and analyze signals, and present results.

Prerequisites: EET 113, MATH 121

AET 334 Fluid Power **3 credits**

Course provides a fundamental understanding of the physical principles of fluid power, along with a practical working knowledge of the components utilized in designing, installing, operating, and maintaining hydraulic and pneumatic power systems.

Prerequisites: MATH 121, PHYS 211

AET 364 Chassis Design and Performance Testing **4 credits**

This course is an exploration of the theory and design of chassis systems, in addition to evaluation of these designs. Research tools include software design simulators, chassis geometry gauges, and dynamometers.

Prerequisites: MATH 121, PHYS 211

AET 366 Automotive Thermodynamics and Engine Design 3 credits
This course focuses on the study of thermodynamics as it relates to internal combustion engines and their design. Static and dynamic engine measurements are thoroughly covered along with an introduction to fuel cell and hybrid application. Thermochemistry topics are covered including fuel characteristics, mixture ratios and emission characteristics.

Prerequisites: CHEM 104, MATH 121, PHYS 211

AET 387 Junior Design Project 3 credits
An examination of automotive design and research along with a review of topics such as ethics, professionalism, measurement, statistics, and career development/placement. This course prepares the student for AET 488, Senior Design Project I, where the design proposal, design project and final report are completed.

Prerequisites: ENG 271W, STAT 154

AET 398 CPT: Co-Operative Experience 0 credits
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: AET 102. At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

AET 435 Automotive Design and Construction 1-4 credits
Focuses on the design and construction of prototype vehicles. Topics include: vehicle design decisions, rules, budgets, chassis design, body and aerodynamics, drivetrain choices, construction techniques, and test procedures. An experimental vehicle will be built in the course. May be repeated.

Prerequisites: Permission Required

AET 436 Hybrid and Electric Vehicles 3 credits
This course covers advanced vehicle propulsion systems within the electric and hybrid electric category. Fundamentals of the operation of electric motors, controllers, inverters, and batteries utilized in electric and hybrid platforms will be covered. In addition, a significant focus will be placed on the application, modeling, integration, testing, and optimization of the systems in electric and hybrid electric vehicles.

Prerequisites: AET 280, AET 366

AET 465 Automotive Laboratory Experience 2 credits
This course is designed to provide experience in management, organization, supervision, and maintenance in a laboratory environment. Enrollment is limited. Sign up at least two semesters ahead.

Prerequisites: AET 364, Permission required

AET 468 Automotive Research Methods 4 credits
Automotive research techniques and equipment form the basis of this course. Environmental measurement, air flow testing, dynamometer testing, emissions measurement and fuel efficiency testing is covered. Emphasis is placed on research procedures, data acquisition and interpretation.

Prerequisites: AET 366, PHYS 211, STAT 154

AET 488W Senior Design Project I 3 credits
The first of a two-course sequence where students carry out their capstone design project. Weekly meetings are scheduled where the design team carries out the tasks required for completion. Formal design presentations and research papers are presented at the end of the course.

Prerequisites: MET 341, AET 364, AET 387

Corequisites: MET 324, AET 468

AET 489W Senior Design Project II 3 credits
The second of a two-course sequence where students build upon the first semester's work. This course culminates with the completion of the capstone project with a formal technical paper following SAE format that would be ready to be submitted for publication.

Prerequisites: AET 468, AET 488W, MET 324

AET 492 Automotive Seminar 1-4 credits
Selected automotive topics.

Prerequisites: Permission required

AET 497 Internship: Automotive 1-10 credits
Automotive work experience in an area pertinent to the student's career objective. Consent of internship coordinator required prior to the beginning of employment and registration. Typically done between the junior and senior year.

Prerequisites: 40 earned credits in AET/MET

AET 499 Individual Study 1-4 credits
Prerequisites: Permission required

Aviation

AVIA 100 Aviation Program Orientation 1 credits
Required for new students entering the Aviation Program. Course covers academic planning, degree audits, flight lab registration and completion requirements, and tips that students can apply to achieve success in the program.

AVIA 101 World of Aviation 3 credits
A study of how aviation fits into our modern world, relation to business, and contribution to the economy. Study of aviation as a visible alternative in transportation.

AVIA 102 Aviation Terminology 3 credits
Aviation Terminology teaches international students the terms and meanings of airports, aircraft, and aviation in general. The course will also include instruction in proper pilot and air traffic control radio procedures and methods when in flight and on the ground. The course should reduce future difficulties in follow-on aviation management or professional flight courses.

AVIA 150 Private Pilot 3 credits
A study of basic aeronautical knowledge including principles of flight, aerodynamics, aviation regulations, weather, visual and instrument navigation, and emergencies. The course meets, but is not limited to 14 CFR 61.105. Satisfactory completion of this course may result in an endorsement for the FAA Private Pilot written exam.

AVIA 151 Private Pilot Flight Lab	2 credits	AVIA 243 Instrument Pilot Flight Lab II	1 credits
Provides beginning flight student with the in-flight requirements needed to obtain the FAA Private Pilot's Certificate.		AVIA 243, Instrument Pilot Flight Lab II, continues the flight lab progression in the MSU aviation program to the second stage of the Instrument Pilot flight lab. The FAA requires each pilot to obtain their Instrument Pilot flight certificate to fly in instrument weather conditions. The course reviews and expands the classroom knowledge received in the Instrument Pilot Ground Course as well as the skills developed in AVIA 241. The training flights continue the building block approach to training with student pilots gradually obtaining the skills to fly in all instrument conditions and to pass an FAA administered practical examination.	
AVIA 152 Private Pilot Helicopter Flight Lab	3 credits	AVIA 250 Commercial Pilot	3 credits
Provides initial flight student with the in-flight training requirements needed to obtain the FAA Private Pilot Helicopter Certificate.		A study of advanced aeronautical knowledge, including aerodynamics, aviation regulations, weather, visual and instrument navigation, and emergencies. The course meets, but is not limited to 14 CFR 61.125(b). Satisfactory completion of this course may result in an endorsement for the FAA Commercial Pilot written exam.	
AVIA 153 Private Pilot Flight Lab II	1 credits	Prerequisites: AVIA 153, AVIA 240	
AVIA 153, Private Pilot Flight Lab II, continues the flight lab progression in the MSU aviation program to the second stage of the Private Pilot flight lab. The course reviews and expands the classroom knowledge received in the Private Pilot Ground Course as well as the skills developed in AVIA 151. The training flights continue the building block approach to training with student pilots gradually obtaining the skills to fly safely and pass an FAA administered practical examination.		AVIA 251 Commercial Pilot Flight Lab	2 credits
AVIA 160 Introduction to UAS	3 credits	Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Commercial Pilot's Certificate.	
This course discusses the Remote Pilot Certification process and the specific rules under which UAS platforms can be operated. Students will gain sufficient knowledge to prepare them for the Remote Pilot Certificate exam and apply that knowledge to operations in the National Airspace		AVIA 252 Commercial Pilot Helicopter Flight Lab	3 credits
AVIA 171 Multi-Engine Flight Lab	1 credits	Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Commercial Pilot Helicopter Certificate.	
Prepares advanced flight student with the in-flight requirements needed to obtain the FAA Multi-Engine Pilot rating.		Prerequisites: AVIA 152, AVIA 242	
Prerequisites: AVIA 151, or equivalent		AVIA 253 Commercial Pilot Flight Lab II	2 credits
AVIA 201 Theory of Flight	3 credits	AVIA 253, Commercial Pilot Flight Lab II, continues the flight lab progression in the MSU aviation program. The FAA requires each pilot to obtain their Commercial Pilot flight certificate to be compensated for work as a pilot. This stage two course of the Commercial Pilot flight lab reviews and expands where required the classroom knowledge received in the Commercial Pilot Ground Course. The training flights use a building block approach to training with student pilots gradually obtaining the skills to fly the more difficult maneuvers and to pass an FAA administered practical examination.	
A study of physics and aerodynamic principles of flight and propulsion systems. The nature of aerodynamic forces is explained. Flight principles of lighter-than-Air, airplane, glider, rotorcraft and powered lift are covered in detail.		AVIA 270 Helicopter Pilot	3 credits
Prerequisites: PHYS 101, MATH 112. Select 1 course: AVIA 150 or AVIA 240		Study of Helicopter theory to meet FAA part 141 certification requirements for helicopter.	
AVIA 202 Principles of Air Navigation	3 credits	Prerequisites: AVIA 150, AVIA 250, AVIA 260	
A study of fundamental air navigation principles and how it is applied to flight. Pilotage and dead reckoning. Great circle navigation. Charts and conformal projections. Celestial navigation. Electronic navigation systems and their operations and use.		AVIA 275 Helicopter Flight Theory	3 credits
Prerequisites: AVIA 150		This course covers all the knowledge areas required for the FAA helicopter private, instrument and commercial pilot certification at a deeper and more academic level.	
AVIA 240 Instrument Pilot	3 credits	AVIA 300 Advanced Studies Orientation	1 credits
A study of the aeronautical knowledge including aviation regulations, weather, instrument navigation, and instrument emergencies. The course meets, but is not limited to, FAR part 61.65 (b, 1-4). Satisfactory completion of this course may result in an endorsement for the FAA Instrument Pilot written exam.		Orientation to academic and administrative expectations of upper division students including basic academic requirements, conducting aviation research, resources available, professional and personal standards of performance, program progression, APA format, and critical thinking.	
Prerequisites: AVIA 150, or equivalent		Prerequisites: ENG 271W or ENG 272W	
AVIA 241 Instrument Pilot Flight Lab	2 credits		
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Pilot rating.			
AVIA 242 Instrument Pilot Helicopter Flight Lab	3 credits		
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Pilot Helicopter rating.			
Prerequisites: AVIA 152			

AVIA 305 Aviation Professional Communications 1 credits
This course will teach students to communicate tactical and strategic messages through written and oral means. Students will develop public speaking skills specific to the aviation industry to include aviation interviewing techniques, crisis communication, and passenger communication. Students will develop their professional resume specific to their career choice.

AVIA 306 Intercollegiate Flight Team 1 credits
Students train for and participate in intercollegiate flight competition as a member of the MSU Flight Team. An additional fee is required during semesters in which the team participates in competition. A maximum of 4 credits can be earned.

AVIA 333 Airline Operations 3 credits
Designed to cover the complex area of operation techniques and problems confronting the airlines today. Entails a study of marketing research, passenger trends, feasibility route studies, etc.

AVIA 334 Aviation Management 3 credits
Provides an understanding of management and financial techniques related to aviation businesses. Generally accepted and proven business techniques and proven business techniques are applied to the aviation setting.

AVIA 336 Basic Aircraft Systems 3 credits
Aircraft systems for light and medium category general aviation aircraft, includes the study of structure, control, electrical, fuel, environmental, landing gear, and engine systems. Examples of general aircraft category aircraft systems will be discussed from the pilot's perspective.

AVIA 337 Avionics 3 credits
Principles of Avionics is an expanded course on the theory and Applications of Aviation Electronics for future pilots and students of aviation and aeronautics. The course highlights modern synthetic displays, navigation, automatic flight control, FMS, and other essential aircraft equipment.

AVIA 338 Advanced Aircraft Systems 3 credits
Hydraulic, pneumatic, electrical, pressurization, environmental, and other systems for large-transport category aircraft are covered. Also, turbine engines, primary and secondary flight controls, and miscellaneous important systems are examined. Examples of systems in large transport-category jets will be discussed from the pilot operational perspective.

Prerequisites: AVIA 201

AVIA 339 Aerospace Propulsion 3 credits
The course provides basic principles of operation and components description of the traditional and modern propulsion systems used in atmospheric and space transportation vehicles. Reciprocating engines with propellers, turbine jet engines, and chemical rockets are covered.

AVIA 340 Flight Operations 3 credits
Introduces students to airline training, regulations, and flight management systems (FMS). Students will develop an understanding of airline operations as they experience an FAA Part 121 style basic indoctrination. Students will be trained on procedures, requirements, and limitations for airline operations through all phases of flight and ground in a simulated Advanced Qualifications Program (AQP) style course. Students will also develop technical and procedural knowledge of FMS.

Prerequisites: AVIA 240

AVIA 343 Airport Management 3 credits
Course provides students with an overview of airport management. Studies include the day-to-day operations of air carrier and general aviation airports as well as planning, design, construction, finance and public relations associated with airport management. Students are exposed to many career opportunities in this area. The course includes a case study of the Minneapolis/St. Paul metropolitan area airport system and several site visits.

AVIA 344 Airport Operations 3 credits
This course prepares students for the Airport Operations certification. It includes topics required for certification: Airport Layout, Safety, Part 139. Airport Surfaces, Marking, Signs, Lighting, Self-Inspections, Ground Vehicles, NAVAIDS, ATC, Part 77, Hazardous Materials, FOD, Wildlife, ARFF, Winter Operations, and Security.

AVIA 360 Flight Instructor 3 credits
A study of the fundamentals of instruction including the learning process, effective teaching evaluation, course development, lesson planning, and instructing techniques. The course meets, but is not limited to 14 CFR 61.185(a). Satisfactory completion of this course may result in an endorsement for the FOI and CFI-A written exam.

Prerequisites: AVIA 243, AVIA 250

AVIA 364 Flight Instructor Flight Lab 3 credits
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Certified Flight Instructor certificate, FAA Instrument Flight Instructor certificate, and FAA Multiengine Flight Instructor certificate.

AVIA 365 UAS Sensors 3 credits
This course will help the student determine the UAV platform to use and demonstrate knowledge of the UAS sensors and operating procedures. The student will also use the UAS for data collection.

Prerequisites: AVIA 160

AVIA 370 Confidence Maneuver Training flight lab 3 credits
An introduction to all-attitude flying in an aerobatic aircraft, to include maneuvers such as stalls/spins, basic aerobatics, and Upset Prevention and Recovery Training (UPRT) per ICAO SARP Annex 1, paragraph 2.4.3.2.2 and the FAA AFH. This course is designed to build pilot confidence and skill as a means of enhancing safety of flight. Training consists of three or four flights, approximately 0.7 to 1.0 hours each, and classroom instruction. Academics include maneuver descriptions, all-attitude aerodynamics and physiology, Upset Prevention and Recovery Training (UPRT), and accident research involving Loss of Control In Flight (LOCI).

Prerequisites: AVIA 253

AVIA 375 UAS Telemetry and Communication 3 credits
This course will provide the student with knowledge of UAS telemetry and communication. The student will apply datalink principles and identify aspects of UAS communication. Students will demonstrate knowledge of issues facing UAS interference.

Prerequisites: AVIA 370

AVIA 383 Flight Instructor Helicopter Flight Lab 1 credits
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Certified Flight Instructor Helicopter Certificate.

Prerequisites: AVIA 252

AVIA 392 Instrument Instructor Helicopter Flight Lab 1 credits
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Helicopter Flight Instructor Certificate.

Prerequisites: AVIA 242, AVIA 252

AVIA 432 Aviation Law – General 3 credits
To instruct the student relative to legal implications of aircraft ownership, leases, rentals, and overall aircraft operation. Emphasis is placed on the understanding of liability and negligence from the operator and pilot standpoints.

AVIA 435 Aviation Law – Transactions 3 credits
This course will take an in-depth look at several legal topics that touch the aviation industry. The course will use the case study method to look at several aviation-related cases, including commercial airline accidents, pilot certificate actions, airline security violation cases, international aviation law, and several other current legal matters that involve the airline industry.

Prerequisites: AVIA 432

AVIA 436 Flight Operations and Procedures 3 credits
Introduces advanced professional flight students to FAR Part 121 style standardized flight training in a regional jet. Course will include aircraft systems, procedures training, and techniques used in high performance turbine aircraft. Emphasis on standard operating procedures (SOP), crew resource management (CRM), and line oriented flight training (LOFT).

Prerequisites: AVIA 340

AVIA 437 Aviation Safety 3 credits
The understanding and implementation of safe operating procedures. Assists the student in arriving at proper decisions related to periods of stress when operating as pilot in command. Various FAA regulations and standard and safe operating procedures are also discussed.

Prerequisites: AVIA 150

AVIA 442 Fundamentals of Air Traffic Control 3 credits
To provide the student with the basic knowledge of ATC as a career and the fundamentals necessary for FAA certification.

Prerequisites: AVIA 240

AVIA 443 Airline Dispatch 3 credits
Introduces the workings of the complex system of air control in the US and abroad. Covers such subjects as radio communications, airspace classification, radar control, and operation as well as aircraft separation. Looks at present and future air traffic control systems.

Prerequisites: AVIA 240, GEOG 217

AVIA 444 Aircraft Dispatcher 2 3 credits
Preparation for the Federal Aviation Administration (FAA) Aircraft Dispatcher Certificate through an in-depth understanding of regulations, meteorology, navigation, aircraft systems, communications, air traffic control, emergency and abnormal procedures and practical dispatch applications. At the completion of the course, students will be prepared for the Federal Aviation Administration Aircraft Dispatcher oral examination.

Prerequisites: AVIA 443

AVIA 445 Aviation Human Factors 3 credits
A study of various techniques designed to enhance management and leadership methods. Emphasizes decision-making and judgment skills as well as methods to improve effective communication and skills to develop a productive work environment for flight crew and other airline personnel.

Prerequisites: Select 1 course: AVIA 150 or AVIA 240

AVIA 450 Professional Pilot Theory 3 credits
This course is designed to develop students technical understanding of information and knowledge required for Air Transport Pilots. Students will participate in a capstone research project and present their findings in a research paper and oral presentation. Course completion requirements will include preparation for the FAA ATP written exam. Must be taken concurrently with AVIA 436.

Prerequisites: AVIA 253, AVIA 340

AVIA 451 Professional Flight Course 3 credits
Prepares students who desire careers as professional pilots. Emphasizes complete ground tutoring and flight instruction relating to instrument maneuvers, SOP's, regulation interpretation, pilot discipline, and professional procedures. Crew resource management, LOFT, and turbine-transition flights in an advanced jet flight simulator are used. This course is taken in conjunction in the same semester as AVIA 450.

Prerequisites: AVIA 253

Corequisites: AVIA 450

AVIA 452 Professional Aviator Course 3 credits
This is a stand-alone course designed for the person who is not an MSU aviation major. The course offers a complete jet aircraft transition training program.

AVIA 455 Aircraft Performance 3 credits
The fundamental principles and calculation of the performance in various phases of flight: takeoff and land, climb and descent performance, maximum-range and maximum-endurance cruise, single-engine performance in multi-engine aircraft, standard atmosphere and basic subsonic and supersonic aerodynamics is covered.

Prerequisites: AVIA 338

AVIA 458 Aeromedical Factors 3 credits
Covers aeromedical factors that are essential for high-altitude flying aircraft. Hypoxia, hyperventilation, dysbarism, basic gas laws. Armstrong line, vision in flight, day and night. Pressurization systems, pressurized suits, danger of loss of cabin pressure, future HSCT and LEO commercial flights.

AVIA 470 Advanced UAS Operation 3 credits
This course will provide the student with knowledge of advanced UAS operations to include a mapping project from proposal through implementation to completion. It will identify security requirements and develop threat models and risk assessment.

Prerequisites: CIS 350, AVIA 375

AVIA 480 UAS Emphasis Senior project/Capstone 4 credits
This course will review and expand on knowledge that has been taught in the program. The student will demonstrate UAS concepts with a meaningful research project using the skills and knowledge learned from the program. They will apply these skills to real world scenarios.

Prerequisites: AVIA 470

AVIA 490 Aviation Workshop	1-10 credits
Corequisites: ANTH 491 or ANTH 492 or ANTH 493 or ANTH 494	
AVIA 497 Aviation Internship	1-12 credits
Supervised experience in business, industry, state or federal institutions.	
AVIA 499 Individual Study in Aviation	1-6 credits
Allows the student an individual course of study on an aviation topic to be arranged with the department.	

Biology

BIOL 100 Our Natural World	4 credits
Introductory course designed for students not majoring in science. Focuses on basic biological principles with special emphasis on the human species. Includes scientific problem solving, biodiversity, human and social aspects of biology, ecology, cellular processes and organ function, human reproduction, pre-natal development, and heredity. Lecture, laboratory, and small group discussions.	
BIOL 102 Biology of Women	3 credits
An introduction to biological topics of special interest to women with emphasis on anatomic and physiologic changes over the course of a woman's lifetime. Designed for students not majoring in science. Presents fundamental biologic concepts within this specialized context and provides opportunity to collect, evaluate, and analyze data.	
BIOL 104 Introduction to Soil Science	4 credits
An introduction to the multidisciplinary field of soil science and fertility. The course will examine the basic physical, chemical, and biological properties of soils. Further topics will explore soil genesis, soil health and management, and their relationships to crop production. Field trips and lab activities will be used to explore key concepts, with emphasis on examples relevant to the soils of southern Minnesota. Local field trips included.	
BIOL 105 General Biology I	4 credits
Study of biological processes at the suborganismal level including cell chemistry, metabolism, reproduction, genetics, and complex tissue physiology. Laboratory and discussion sessions stress problem solving and experimental design.	
BIOL 106 General Biology II	4 credits
Study of biological processes at the organismal level including a survey of life forms (viruses, bacteria, protists, fungi, plants, and animals), their evolution, and ecology. Laboratory and discussion sessions stress problem solving and experimental design.	
BIOL 125 Livestock Production	3 credits
This course covers animal production history and economic impact, breed development, animal anatomy and physiology, animal production features, growth and lactation physiology, environmental animal production factors and animal research. This course also provides a comprehensive introduction to the fundamental principles of animal science based on biological and scientific aspects of animals that serve mankind.	
BIOL 136 Forages and Pasture Management	2 credits
This course includes the study of the management and production of forages, grasses for harvested and grazed production. Subject areas will include varieties selection, planting, calculating yields, production costs, growth management, harvesting techniques and marketing techniques. The forage management will focus on legume and grass production, it will include emphasis on establishment, winter survival, fertilization, cutting management, forage storage and variety selection.	

BIOL 146 Agronomy I	2 credits
This course covers agronomy principles for crop growth in the upper Midwest. The course covers the components of plant growth, seed quality, plant structures, plant development, plant classification, maturity systems and seeding rates. Corn and soybean production will be the main crops being discussed. The lab component will include activities in seed germination, staging of plant growth, stem, root, and flower structures.	
BIOL 175 Orientation to Clinical Laboratory Science	1 credits
An introduction to the health care profession with special emphasis on clinical laboratory personnel. Course includes presentations by professionals in some of the major health care fields, especially medical technology. Includes lectures, field observations.	
BIOL 201 Anatomy & Physiology I	4 credits
This course is designed for nursing and allied health sciences majors and will prepare them for advanced coursework in their majors. The course will focus on human anatomy and physiology with emphasis on the structure and function of the systems of the body. Special emphasis will be placed on cell structure and function, tissues, metabolism and major organ systems including the integumentary system, the skeletal system, joints, muscle and muscular system, and nervous system, and special senses. Lab included with dissection.	
BIOL 202 Anatomy & Physiology II	4 credits
This course is designed for nursing and allied health sciences majors and will prepare them for advanced coursework in their majors. This course will focus on human anatomy and physiology with emphasis on the structure and function of the systems of the body. Special emphasis will be placed on cells, tissues, structure and function of major organ systems including endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems, and development. Lab included with dissection.	
BIOL 204 Soils II	3 credits
This course will include both the technical and practical information that should be of assistance to a student who will farm or go into the fertilizer business. The course deals with the basic soil-plant relationships and the effects of fertility. Detailed information of soil test results will be covered. Materials from the Certified Crop Advisor program will be used.	
Prerequisites: BIOL 104, GEOL 104	
BIOL 211 Genetics	4 credits
Introduction to genetic analysis. Topics covered will include those of both classical and modern genetics: population genetics, molecular genetics, genetic manipulation of organisms and selection. Central to this course will be the primacy of the trait as the object of genetics and the development/refinement of the concept of the gene. Lab included. Fall, Spring, Summer	
Prerequisites: BIOL 105, BIOL 106, and MATH 112	
BIOL 215 General Ecology	4 credits
Principles of the study of relationships between organisms and the environment. Topics include flow of energy and materials, organism-level interactions, growth and evolution of populations, and community ecology. Field trips to prairie, lake, stream, and forest communities, training in data collection and analysis, use of equipment, and report writing. Lab included.	
Prerequisites: BIOL 105 and BIOL 106 or consent	

BIOL 217 Plant Science 4 credits Biology of plants including unique features of plant cells, life histories, metabolism, anatomy, physiology, and ecology. The course empathizes plants' remarkable adaptations to their environments, their diversity, and the vital roles they play in ecological interactions. For biology and environmental science majors and minors. Lab included. Prerequisites: BIOL 105 and BIOL 106 or consent	BIOL 306 Vertebrate Zoology 4 credits This course will explore the diversity of vertebrate animals from chordates ancestors, fishes, amphibians, reptiles, birds, and mammals. Discussion of major taxa will focus on evolutionary relationships, ecology, and biology. Lab will focus on identification from both museum and field specimens. Prerequisites: BIOL 105, BIOL 106
BIOL 220 Human Anatomy 4 credits Systems approach to the structure of the human body. The course is designed for students majoring in biology or health related programs. Lab included.	BIOL 310 Basics of Human Physiology 4 credits Principles of functions of human cells, organs, and systems with an emphasis on organ/system interactions. Designed for majors that do not require a strong medical and research emphasis. Includes an active learning laboratory to facilitate learning the complex lecture material. Prerequisites: BIOL 220, CHEM 104 or CHEM 106 or CHEM 111 or CHEM 201
BIOL 246 Agronomy II 3 credits This course considers the characteristics and identification of noxious and common weeds and weed seeds, methods of control, evaluation of herbicide performance and tolerance to herbicides. Topics on herbicide characteristics, formulations and application methods will be taken into account in determining the most economic method of weed control. Prerequisites: BIOL 146	BIOL 320 Cell Biology 4 credits An examination of eukaryotic cellular structure, organization and physiology. Lab included. Prerequisites: BIOL 105 and BIOL 106, BIOL 211
BIOL 270 Microbiology 4 credits An introduction to the general principles and methods used in the study of microorganisms. Lab included. Prerequisites: One BIOL course and one semester of chemistry from among CHEM 104, CHEM 106, CHEM 111, or CHEM 201. Fall, Spring, Summer	BIOL 324 Neurobiology 3 credits Basic anatomy and physiology of the nervous system. The course is designed for students majoring in biology, psychology or health related programs. Prerequisites: BIOL 220
BIOL 271 Principles of Microbiology 4 credits An introduction to the general principles and methods to control the growth and transmission of pathogenic microbes and the development of antibiotic resistance in healthcare, food preparation/service, and industrial settings. Lab included.	BIOL 325 Principles of Human Anatomy 4 credits Systems and regional approach to the structure of the human body. Primary emphasis on gross anatomy supported by 3-dimensional models and animal dissections, with additional emphasis on cell and tissue-level anatomy supported by histological examination. The course is designed for students majoring in biology programs. Lab included. Prerequisites: BIOL 105
BIOL 280 Biological Laboratory Experiences for Elementary Teachers 3 credits Provides experience with a wide variety of biological laboratory exercises to prepare prospective elementary teachers. Emphasis is on building knowledge, skills, and confidence. The course will cover major biological concepts and environmental education through classroom-ready examples selected to illustrate each concept.	BIOL 330 Principles of Human Physiology 4 credits Principles of functions of human cells, organs, and systems with an emphasis on organ/system interactions. This course is designed for students majoring in biology, chemistry, or related sciences, and medically-related areas. Includes a laboratory with a research and medical emphasis. Prerequisites: BIOL 220, CHEM 104 or CHEM 106 or CHEM 111 or CHEM 201
BIOL 300 Evolutionary Analysis 3 credits This course will provide students a comprehensive approach to understanding the unifying theory that all biological systems must operate. Student will apply evolutionary theory to ecosystem, population, individual and gene levels of organization in both eukaryotic and prokaryotic groups. Prerequisites: BIOL 105, BIOL 106, BIOL 211	BIOL 346 Advanced Agronomy 3 credits Students will study management practices in the production of corn and soybeans, the economic and environmental aspects of soil damage systems, nutrient management recommendations for nitrogen and phosphorus, and current topics in the agronomy field. In the lab portion of the course, students will learn about grading crop samples and plant genetics. Prerequisites: BIOL 146, BIOL 246
BIOL 305 Invertebrate Zoology 4 credits This course will introduce students to the wide diversity of invertebrate animals. Students will understand the major similarities and differences of the invertebrate taxa (protostomes and deuterostomes) through a comprehensive phylogenetic analysis of their morphological and functional features. Emphasis will focus on evolutionary relationships among taxa including ecology, development, life cycles, anatomy, and physiology. Lab will focus on skills related to invertebrate identification, manipulation, and field collection. Prerequisites: BIOL 105, BIOL 106	

BIOL 371 Microbiology 4 credits This course is a comprehensive introduction to the structure, biochemistry, phylogeny, molecular biology, pathobiology, immunology, and ecology of microbes, with an emphasis on bacteria. Lab will include classical and contemporary techniques for the identification and characterization of bacteria. Prerequisites: BIOL 105, BIOL 106, CHEM 201	BIOL 409 Advanced Field Ecology 4 credits A field course focused on the function and dynamics of various North American ecosystems. Emphases will be on natural history, critical thought, and experimental design. Students will be trained in a variety of soil, plant, and animal sampling techniques. Depending on enrollment, there may be additional costs (e.g., camping fees) for the course. Prerequisites: BIOL 105, BIOL 106, BIOL 215 or consent
BIOL 380 Blood Banking/Urinalysis 3 credits Basic understanding of the principles of immunohematology applied to the area of blood banking including major blood group systems, principles for antigen/antibody detection and identification, donor blood collection, transfusion evaluation, theory of renal function in health and disease, specimen collection, handling, and processing, and components of routine urinalysis.	BIOL 410 Global Change Biology 3 credits This class examines the effects of natural and human-induced changes in climate on terrestrial and marine ecosystems. The course focuses on the science behind global change issues that have biological, social, and economic implications. Prerequisites: BIOL 105, BIOL 106, BIOL 215 or consent
BIOL 398 RISEbio research 2 credits This course is designed as research experience to RISEbio scholars. Students taking this course will be involved in an original research project that is mentored by faculty. Using a variety of methods, students will collect original data and contribute to problem solving in the biological sciences. As an early research experience, emphasis will be placed on the process of scientific research, including formulation of a research plan, data collection, assessment of data quality and interpretation based on available data. Students are required to keep a lab notebook, work in teams and present their findings to classmates and a wider audience. Prerequisites: BIOL 105, BIOL 106. RISEbio program participant, instructor permission	BIOL 411 Human Genetics 3 credits This course will examine multiple facets of human genetics. The modern human genome is not a static entity but one that arose from a dynamic combination of inputs from multiple human species, effects from the environment, and their mixture over time. The first third of the course will study ancient human genetics and their contributions to our genome, the second will study human ancestry and migration patterns, and human population genetics. The final third of the course will investigate the modern human genome, genetic diseases, genetic engineering of our genome, and the future of human genetics and its ethical implications.
BIOL 402 Stream Ecology 4 credits The structure and function of stream ecosystems are presented with emphasis on adaptations of organisms to stream life and connections between stream organisms, the aquatic environment, and the surrounding watershed. Includes lab, field work, and team projects. Prereq: BIOL 105W, BIOL 106, BIOL 215 or consent Summer Prerequisites: BIOL 105, BIOL 106, BIOL 215 or consent	BIOL 412 Soil Ecology 4 credits Soil ecology will focus on the genesis and classification of soils, the physical properties of soil as they relate to habitat formation, niches, interactions that exist among soil organisms, human impact on soil systems relative to population pressures and management practices. Lab included. Prerequisites: BIOL 105, BIOL 106, BIOL 215, or consent
BIOL 403 Conservation Biology 3 credits Applications of principles from ecology, genetics, behavior, demography, economics, philosophy, and other fields to the conservation and sustainable use of natural populations of plants and animals. Lectures and discussions address topics such as habitat fragmentation, parks and reserves, genetic diversity, population viability, and extinction. Prerequisites: BIOL 215 or consent	BIOL 413 Bioinformatics 4 credits The advent of next-generation DNA and RNA sequencing technology has revolutionized Biology, leading to transformational insights in disciplines spanning medicine, molecular taxonomy, conservation, and agriculture. This course will introduce students to computational and bioinformatics tools necessary to address and analyze "Big Data", with special attention paid to interpretation and communication through figures. Students will be free to analyze publicly-available data of their choosing alongside curated cohorts while learning how to critically assess bioinformatics conclusions found within primary research literature. No prior computer programming experience is necessary. The associated lab will focus on computational analysis and the introduction of sequencing techniques. Prerequisites: BIOL 105, BIOL 106, BIOL 211
BIOL 404 Wetlands 4 credits To provide students the values and functions of wetlands and to use wetlands as an example of the relationship of ecology to management, and the impact that classification systems have politically. Lab (fieldwork) included. Prerequisites: BIOL 215	BIOL 414 Ichthyology 4 credits This course will discuss the evolution and diversification of fishes with an emphasis on anatomy, physiology, development, behavior, classification, and select fish's ecological role in major systems. Students will also develop identification skills on fish characteristics that define major taxonomic groupings. Laboratory will focus on identification and physical manipulation of fishes. Prerequisites: BIOL 306
BIOL 406 Fish Management 4 credits This course will explore the biology and diversity of fishes. Students will understand the major structure, physiology, ecology, and evolution of fishes with special relation to fisheries and conservation management. Prerequisites: BIOL 215	

BIOL 415 Ornithology **4 credits**

This course will discuss the evolution and diversification of birds with an emphasis on anatomy, development, behavior, migration, and mating systems. Students are expected to participate in field-based projects on spatial and temporal distributions of local bird populations. Students will also develop identification skills on regional bird species.

Prerequisites: BIOL 105, BIOL 106, BIOL 306

BIOL 417 Biology of Aging and Chronic Diseases **3 credits**

Emphasis is placed on the biomedical aspects of aging and chronic disease. The course is designed for students majoring in biology, gerontology programs, or other health related programs.

Prerequisites: BIOL 100 or BIOL 105

BIOL 420 Diagnostic Parasitology **4 credits**

Clinically important parasites. Protozoans, Flukes, Tapeworms, Roundworms, Ticks, Mites and Insects. Designed for Medical Technology, Pre-Med, Pre-Vet and Biology majors. Identification, clinical disease, epidemiology and ecology are covered. Lab included.

Prerequisites: BIOL 100 or BIOL 105, BIOL 106 recommended

BIOL 421 Entomology **3 credits**

Morphological, physiological, medical, and economic significance of insects.

Prerequisites: BIOL 105 and BIOL 106 or consent

BIOL 423 Comparative Vertebrate Anatomy **4 credits**

This course will explore the structure and function of the vertebrate body in its diverse forms from fishes to mammals. Discussion of individual organ systems will focus on developmental patterns, function and evolutionary relationships. The lab will include microanatomy (histology) and macroanatomy (gross anatomy) of example organisms. Students will become familiar with the tissue, organ and system levels of the anatomy of vertebrates.

Prerequisites: BIOL 105, BIOL 106, BIOL 306

BIOL 424 Developmental Biology **3 credits**

Understanding the process of cell differentiation and development. Special emphasis will be placed on the genetic, molecular, and cellular mechanisms that direct the development of multicellular organisms. Course to include current areas of research and other timely topics.

Prerequisites: BIOL 100 or BIOL 105

BIOL 425 Developmental Biology Lab **1 credits**

Biology 425 is an optional 1-credit laboratory addition to Developmental Biology, Biology 424. In the laboratory component, students will be exposed to modern techniques used to examine developmental processes in several key model systems. Laboratory exercises consist of experiments designed to demonstrate fundamental concepts in development and to familiarize students with experimental approaches utilized in studying developmental biology and embryology.

Prerequisites: BIOL 211; Co-requisite: BIOL 424

BIOL 430 Hematology/Introduction to Immunology **4 credits**

Collection, examination, evaluation, morphology, function and diseases of blood cells. Hemostasis/coagulation of blood. Immunology theory is presented. Lab included.

BIOL 431 Comparative Animal Physiology **3 credits**

A comparison of adaptation mechanisms, from cell to organ-system, used by animals in response to "changes in" environmental conditions such as oxygen, carbon dioxide, food availability, temperature, water, solutes, pressure and buoyancy.

Prerequisites: BIOL 105, BIOL 106 or consent

BIOL 432 Lake Ecology **4 credits**

This course is an introduction to the physical, chemical, and biological characteristics and interactions of inland freshwater lakes. Labs will emphasize field work, including data collection from five local lakes, analysis, and discussion.

Prerequisites: BIOL 215

BIOL 433 Cardiovascular Physiology **3 credits**

This course is a functional study of the heart and circulatory system.

BIOL 434 Animal Physiology **4 credits**

This course focuses on animal physiology with an emphasis on both invertebrates and vertebrates. Specifically, the course will focus on comparative mechanisms involved in physiological processes at the molecular, cellular, tissue, organ, system and whole organism levels. Inquiry-based laboratory exercises will examine physiological concepts using animal models.

Prerequisites: CHEM 201, BIOL 423

BIOL 435 Histology **4 credits**

Study of types, arrangements and special adaptations of human tissues. Lab included.

Prerequisites: BIOL 220

BIOL 436 Animal Behavior **4 credits**

An exploration of behavioral strategy, communication, learning, and social systems of animals, with emphases placed on the causes, evolution, ecological implications, and function of behavior at the individual and population level. Lab included.

Prerequisites: BIOL 105, BIOL 106

BIOL 438 General Endocrinology **3 credits**

This course provides the basis for understanding hormones and the mechanisms of their actions in both the normal and pathological states. Sample topics to be included are diabetes, osteoporosis, hormones of reproduction and current social and medical issues related to the course.

Prerequisites: BIOL 100 or BIOL 105

BIOL 440 Wildlife Management **4 credits**

A practical and didactic approach to understanding the practices and challenges of managing wildlife populations. Course will focus on applying the ecology, development, physiology, and behavior of wildlife populations to specific management outcomes.

Prerequisites: BIOL 105, BIOL 106, BIOL 215, BIOL 306

BIOL 441 Plant Physiology **4 credits**

Plant functions such as water relations, mineral nutrition, translocation, metabolisms, photosynthesis, photorespiration, fat and protein metabolism, respiration, growth and development, phytohormones, reproduction and environmental physiology. Lab included. (One semester organic chemistry is recommended.)

Prerequisites: BIOL 105, BIOL 106, BIOL 217, one semester organic chemistry recommended.

BIOL 442 Flora of Minnesota **4 credits**
Field identification of plants with emphasis on local flora. History systematic, techniques, plant biogeography, methods of plant collection, preservation, preparation of herbarium specimens are covered. Lab and field trips included.

BIOL 443W Plant Ecology **4 credits**
Expands upon general principles of ecology to focus on the factors that regulate the distribution and abundance of plants, analysis of plant populations, dynamics of plant communities, and scientific communication. Lecture and lab (fieldwork) included. (Taking BIOL 217 is strongly recommended before taking this class.)

BIOL 446 Principles of Weed Science **4 credits**
This course will introduce students to the principles and practices of weed science. Lecture will cover topics including weed biology and ecology, an introduction to weed management techniques and methodologies, factors affecting weed control, and environmental issues associated with weed management. Course material will highlight weed management in cropping systems, non-row crop and rights-of-way, natural areas, and aquatic habitats. The laboratory component of the course will focus on weed identification, crop/weed competition, application techniques including effective herbicide use and current weed control practices. In addition to the prerequisites listed, BIOL 217 is strongly recommended.

Prerequisites: BIOL 215, BIOL 217

BIOL 451 Agroecology **4 credits**
Lecture/laboratory course that presents an integrated view of plant biology, crop science, ecology, sustainability and current issues in biotechnology. Course focuses on issues of global concern such as sustainable food production, cropping techniques, climate change responses, pest management and herbicides, resistance, biofuels, genetically modified crops, molecular pharming, and tissue culture. Fall.

Prerequisites: BIOL 105, BIOL 106

BIOL 452 Biological Instrumentation **3 credits**
The principle and operation of instruments and their application to biological research. Types of instrumentation examined include spectroscopic, chromatographic, electroanalytic, radiographic, and imaging. Laboratory Information Management systems (LIMS) will also be examined. Emphasis is placed on GLP, GMP, and ISO 9000 practices.

Prerequisites: BIOL 105, BIOL 106, or consent

BIOL 453 Biological Engineering Analysis I **4 credits**
The application of engineering principles and skills as applied to fermentation and to biological product recovery.

Prerequisites: BIOL 270 and one semester each of calculus, physics, and organic chemistry, taken concurrently with BIOL 456.

BIOL 454 Biological Engineering Analysis II **4 credits**
Continuation of Biological Engineering Analysis I. The application of engineering principles and skills as applied to fermentation and to biological product recovery.

Prerequisites: BIOL 453, taken currently with BIOL 457

BIOL 456 Biotechnology Project/Laboratory I **3 credits**
Practical laboratory experience in biotechnology through the selection and development of a research project. Students are expected to spend an average of 12 hours per week on the project.

Prerequisites: Concurrent enrollment in BIOL 453

BIOL 457 Biotechnology Project/Laboratory II **3 credits**
Continuation of Biotechnology Project/Laboratory I. Practical laboratory experience in biotechnology through the selection and development of a research project. Students are expected to spend an average of 12 hours per week on the project.

Prerequisites: BIOL 456, taken concurrently with BIOL 454

BIOL 466 Principles of Pharmacology **3 credits**
A lecture course that examines mechanisms of drug action, physiological responses and adverse reactions from sensitivities or allergies through overdose.

Prerequisites: CHEM 201, BIOL 211. Select 1 course: BIOL 320 BIOL 330, BIOL 431, BIOL 441, BIOL 476

BIOL 472 Microbial Ecology and Bioremediation **4 credits**
Role of microorganisms in soil, air, water, sewage processes as well as methods of measurement and detection. Special emphasis on the role of microorganisms in bioremediation. Lab included.

Prerequisites: BIOL 105, BIOL 106, and BIOL 270

BIOL 473 Virology **3 credits**
Viruses infect all living things, such as bacteria, fungi, plants, and animals (including humans). There are many viruses that cause significant human mortality and morbidity, such as influenza and smallpox viruses. However, the vast majority of viruses that infect humans have little or no negative impact on our health and well-being. This course will teach Virology by stressing the rules of replication that every virus must follow. The use of viruses as molecular tools, virus-host interactions, and current viral outbreaks will also be discussed.

Prerequisites: BIOL 105, BIOL 106, and BIOL 270

BIOL 474 Immunology **4 credits**
Fundamental principles of humoral and cell mediated immunity and the application of these principles. Current experimental work in the different areas of immunology will be discussed. Lab included.

Prerequisites: BIOL 105, BIOL 106, and BIOL 270

BIOL 475 Medical Microbiology **4 credits**
This course will cover bacterial, fungal, and viral human pathogens: what diseases they cause, how they cause disease, and how humans defend against and prevent those diseases. In the laboratory the student will isolate and identify pathogenic microorganisms using microbiological, biochemical, and immunological techniques.

Prerequisites: BIOL 270

BIOL 476 Microbial Physiology and Genetics **5 credits**
This course presents the physiology and genetics of microorganisms emphasizing those aspects unique to bacteria and archaea. Topics include: energy production; biosynthesis of small molecules and DNA, RNA, and proteins; the formation of cell walls and membranes; microbial differentiation and behavior; and the genetic and biochemical regulation of these processes. Lab included.

Prerequisites: BIOL 105, BIOL 106, BIOL 270

BIOL 478 Food Microbiology and Sanitation **4 credits**

The role microbes play in production and spoilage of food products, as prepared for mass market. Topics include foodborne pathogens, epidemiology and control, essential principles in sanitation including Hazard Analysis/Critical Control Point and ISO 9000 requirements. Lab included.

Prerequisites: BIOL 105, BIOL 106 and BIOL 270

BIOL 479 Molecular Biology **4 credits**

This course will cover both eukaryotic and prokaryotic molecular biology including: DNA and RNA structure, transcription, regulation of gene expression, RNA processing, protein synthesis, DNA replication, mutagenesis and repair, recombination, and insertion elements. A number of important techniques used in recombinant DNA technology will be discussed and practiced.

Prerequisites: BIOL 105, BIOL 106, BIOL 211

BIOL 481 Lab Supervision and Maintenance **1 credits**

Experience in maintaining and supervising laboratories. For individuals desiring additional experience with students in laboratory situations.

BIOL 485 Biology Teaching Methods and Materials **4 credits**

A basic science methods course designed to prepare prospective junior and senior high life science teachers. Course will cover science teaching methods and support materials as they apply to life science teaching situations.

Prerequisites: 16 credits BIOL

BIOL 487 Nuclear Medicine Technology Internship I **17 credits**

The clinical internship and training include lectures, demonstrations, laboratory sessions, and clinical practicum in the area of nuclear medicine technology in affiliation with Mayo School of Health Sciences in Rochester, MN.

BIOL 488 Nuclear Medicine Technology Internship II **17 credits**

The clinical internship and training include lectures, demonstrations, laboratory sessions, and clinical practicum in the area of nuclear medicine technology in affiliation with Mayo School of Health Sciences in Rochester, MN.

BIOL 489 Senior Seminar **1 credits**

Senior Seminar in Biology will expose student to the variety of research and job outcomes that exist within the field of biological sciences. Students will receive help in resume building, interview skills, and overall oral and written communication. Students must have completed 90 credits or more toward graduation.

BIOL 490 Workshop **1-4 credits**

A variable topic course designed for a selected topic in Biology. Workshops provide an intensive learning experience on a new topic in the Biological Sciences and/ or hands-on experiences in a current area not covered by other course offerings. The course involves background reading, demonstrations, and laboratory or field experiences.

BIOL 493 Cytotechnology Clinical Internship I **1-12 credits**

The clinical internship and training include lectures, demonstrations, laboratory sessions, and clinical practicum in the area of cytotechnology. Instructor permission required.

BIOL 494 Cytotechnology Clinical Internship II **1-12 credits**

Continuation of Cytotechnology Clinical Internship I. The clinical internship and training include lectures, demonstrations, laboratory sessions, and clinical practicum in the area of cytotechnology. Instructor Permission required.

BIOL 495 Cytotechnology Clinical Internship III **1-12 credits**

Continuation of Cytotechnology Clinical Internship II. The clinical internship and training include lectures, demonstrations, laboratory sessions, and clinical practicum in the area of cytotechnology. Instructor Permission required.

BIOL 496 Cytotechnology Clinical Internship IV **1-12 credits**

Continuation of Cytotechnology Clinical Internship III. The clinical internship and training include lectures, demonstrations, laboratory sessions, and clinical practicum in the area of cytotechnology. Instructor Permission required.

BIOL 497 Internship I **1-12 credits**

Experience in applied biology according to a prearranged training program for a minimum of five 40-hour weeks.

Prerequisites: Consent

BIOL 498 Internship II **1-12 credits**

Experience in applied biology according to a prearranged training program for a minimum of five 40-hour weeks. Only four credits can be applied to the major.

Prerequisites: Consent

BIOL 499 Individual Study **1-4 credits**

Individual Study

Business

BUS 295 Professional Preparation for Business Careers **2 credits**

This course is required for admission to the College of Business for all business majors. The purpose of the course is to provide students with an overview of COB majors, allow students to create an academic plan for graduation, and develop professional skills needed for future job placement. Topics include cover letter and resume writing, interviewing skills, the process of networking, the internship program, etiquette skills, and requirements for graduation.

BUS 397 IBE Practicum **3 credits**

BUS 397 provides students an entrepreneurial real-world learning opportunity. Students gain additional insight into business concepts by applying the material in a real-world environment and gaining insight into the integrated nature of business. The class focuses on learning to develop and operate a business entity. Student teams will operate their own company, obtain an actual bank loan, and sell their chosen products throughout the semester. The class provides an opportunity to practice business skills such as communication, problem-solving, and leadership. Students learn what it takes for entrepreneurs to succeed while giving back through community service.

Prerequisites: Must be admitted to a major.

Corequisites: FINA 362, MGMT 230, MRKT 210

BUS 491 BBA Capstone I **1 credit**

The first capstone course will begin with the student identifying a business problem based on feedback solicited from management, peers, faculty, and/or mentors. The scope of the project definition will be documented and reviewed with a key business stakeholder who will work directly with the student throughout both capstone courses. A mutually acceptable project plan will represent an appropriate level of complexity to achieve the final project goal and solve a business problem of strategic importance for the business organization.

Prerequisites: All other BBA program courses (excluding two capstone courses) must be complete with a mastery of 70% or higher.

BUS 492 BBA Capstone II **3 credits**

The student will demonstrate and apply knowledge gained from the first capstone course (BUS491) and overall BBA program into the real-world project experience. Business skills and professional development will be challenged for the student to integrate relevant knowledge through the project-based learning experience. The final written and oral presentation of the project results will demonstrate the problem-solving and critical thinking context beyond the classroom.

Prerequisites: BUS 491

Business Law

BLAW 200 Legal Environment of Business **3 credits**

Application of law to business settings; the American court system; alternative dispute resolution; ethics and the social responsibility of business; fundamentals of legal reasoning; sources of law; constitutional, criminal, tort, and contract law; business associations.

BLAW 398 CPT: Co-Operative Experience **0 credits**

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and on adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: Permission of the Chairperson of the department; co-op contract; other prerequisites may also apply.

BLAW 450 Contract Law and Professional Responsibility **3 credits**

Fundamentals of contracts, the law of sales under the UCC; the legal liability of accountants to clients and third parties. Formation of contracts; statute of frauds and parole evidence rule; contract performance; remedies for breach of contract; scope of UCC Article Two; sales warranties; remedies for breach of contracts.

Prerequisites: BLAW 200

BLAW 452 Employment Law **3 credits**

Federal employment discrimination laws; sexual harassment; first amendment rights; employee safety; workers' compensation; privacy; wrongful termination; federal laws governing the right to organize and bargain collectively; emerging issues.

Prerequisites: BLAW 200

BLAW 453 International Legal Environment of Business **3 credits**

Legal aspects of United States global trade policies, regulation of imports, contracting in the global marketplace, international marketing concerns, structure of various international organizations and treaties. Legal aspects of international licensing and technology, transfers risks of nationalization and expropriation, international dispute resolution, comity, the Act of State, and sovereign immunity doctrines.

Prerequisites: BLAW 200

BLAW 455 Legal Aspects of Banking and Finance **3 credits**

Legal aspects of checks and promissory notes, forgery and the use of counterfeit currency. Discusses the Federal Reserve check collection process, electronic banking, the purchase and sale of commercial paper, debtor and creditor rights, securities regulation, fundamentals of collateral foreclosure, the federal bankruptcy code and insurance law.

Prerequisites: BLAW 200

BLAW 471 Technology and Intellectual Property Law **3 credits**

This class examines major intellectual property legal issues particularly as they apply to business, technology, innovation and digital media. Topics covered include patents, trademarks, copyrights, trade secrets, intellectual property crime, free speech, the internet and social media, innovation and other emerging issues.

BLAW 474 Environmental Law **3 credits**

The course introduces students to the legal framework for environmental protection in the United States. Students will study the principal treaties, common law, constitutional principles, statutes, and regulations that govern environmental regulation. They will also explore issues of land use and planning, clean air and water laws, sustainability, and emerging environmental legal issues.

Prerequisites: BLAW 200

BLAW 476 Construction and Design Law **3 credits**

Legal responsibilities of architects, engineers and contractors in dealing with each other, the project's owner, sureties and subcontractors. Special emphasis on performance problems, forms of business association, legal relationships with independent contractors, the AIA contract documents, mechanics liens, AAA Construction Arbitration Rules, dispute avoidance, claims management and collection strategies.

Prerequisites: BLAW 200

BLAW 477 Negotiation and Conflict Resolution **3 credits**

This course examines the theory and practice of negotiation and trains students to be effective, strategic and ethical negotiators. Topics covered include theories, style and techniques of negotiations and dispute resolution; contract negotiation and dispute resolution; alternative dispute resolution; and ethical aspects of negotiation and dispute resolution. Students will develop negotiation skills through cases and activities.

Prerequisites: BLAW 200

BLAW 483 Special Topics **1-3 credits**

Seminar topics may include women and the law, legal aspects of entrepreneurship, mergers and acquisitions, legal rights in computer software, investigating sexual harassment claims, copyright on the internet, immigration law, steps to become an IPO, privacy rights on computer networks, case studies in deregulation, legal aspects of leveraged buyouts, corporate takeover and ESOP's, complying with NAFTA.

BLAW 492 Study Tour **1-3 credits**
Study tours are led by Minnesota State University, Mankato faculty members and provide students the opportunities to visit epicenters of international law to experience the development and implementation of international law and its effect on businesses.

BLAW 497 Internship **1-8 credits**
BLAW 498 Internship **1-3 credits**
BLAW 499 Individual Study **1-4 credits**

CAHN Interdisciplinary

CAHN 101W The Health Care Professions **3 credits**
This interdisciplinary course is designed to introduce students to health careers and related professions. It is a writing intensive course preparing students to become effective communicators within the context of health care settings.

Chemistry

CHEM 100 Chemistry in Society **3 credits**
This lecture and laboratory course investigates the world of chemistry, the nature of matter and our interactions with chemicals on a daily basis. This course is intended for non-science majors and is not a preparation for CHEM 111 or CHEM 201. Credit will not be given to students who have previously taken a chemistry course at or above Chem 111 and received a passing grade.

CHEM 101 Skills for General Chemistry **2 credits**
This course is intended for students who have withdrawn from, or been unsuccessful in General Chemistry I. This course will help the student develop fundamental applied mathematics and chemistry skills that are central to success in General Chemistry, including unit conversions, scientific notation, relevant algebraic manipulations, chemical formulas and naming, and fundamental stoichiometry and reactions.

CHEM 104 Introduction to Chemistry **3 credits**
This course is an introduction to general chemistry. It is a non-laboratory class designed to prepare students for CHEM 201 or to be utilized as a general education course. This course will address more mathematical relationships than CHEM 106. Credit will not be given to students who have previously taken a chemistry course at or above Chem 111 and received a passing grade.

CHEM 106 Chemistry of Life Process Part I (General) **3 credits**
This course covers fundamental concepts required to understand the general chemistry in living organisms. This is a non-laboratory class. This chemistry course will not prepare students for any Chemistry course at or above the 200 level. High school algebra recommended.

Prerequisites: High school algebra recommended

CHEM 111 Chemistry of Life Process Part II (Organic & Biochemistry) **5 credits**
This course is an introduction to organic chemistry and biological chemistry. The laboratory will reinforce lecture.

Prerequisites: CHEM 106 or high school chemistry

CHEM 131 Forensic Science **3 credits**
This chemistry course explores the scientific methods used in criminal investigations. Course topics will include discussions of different kinds of evidence, how to select and analyze samples, and especially how to interpret results of scientific tests. Specific topics will include the analysis of DNA, drugs, accelerants and explosives, and other organic and inorganic compounds. Case studies will be used as examples throughout the course. There will also be discussions concerning the ethics of analysis and uses of forensic data.

CHEM 134 Mind Altering Substances **3 credits**
This course will explore the scientific, pharmacological, neurochemical and cultural aspects of psychoactive substances. The material is presented intuitively, with no mathematics. Course topics will include discussions of the major classes of pharmaceutical and psychoactive substances, basic neurochemistry, the role of psychoactive substances in medicine, the ritual use of psychoactive substances by traditional cultures, the FDA approval process, the significance and implications of drug testing, the controversy of drug-induced behavioral modification, national and global perspectives of substance abuse and the ethics of legalization.

CHEM 190 Learning in Chemistry Applications **1 credits**
This course is designed for those students who struggle with Chem 191. Students will learn study skills and time management skills that will aid in their success in Chem 191. Students will also refresh concepts that were learned in high school or previous college chemistry courses.

CHEM 191 Chemistry Applications **3 credits**
From an engineering perspective, concepts of general chemistry will be investigated. Topics include atomic structure, stoichiometry, gas laws, periodic trends chemical bonds, thermodynamics, kinetics and organic chemistry.

Prerequisites: High school chemistry or "C" (2.0) or higher in CHEM 104. Student must demonstrate math placement requirements at or above MATH 115 in the placement chart. See Mathematics for details.

CHEM 200 GC1 Laboratory Component **1 credits**
General chemistry lab for students who successfully have completed a general chemistry lecture course elsewhere and transferred to MSU. The transfer course must be accepted by the Chemistry Department as content/level appropriate and the MSU major must require Chemistry 201. This course requires special permission. Prerequisite: college level general chemistry lecture.

Prerequisites: CHEM 191

CHEM 201 General Chemistry I **5 credits**
Introduction to the basic principles of chemistry including atomic and molecular structure, bonding, chemical reactions, stoichiometry, thermodynamics and states of matter. Laboratory will reinforce lecture concepts.

Prerequisites: "C" (2.0) or higher in MATH 112 or the equivalent; high school chemistry or "C" (2.0) or higher in CHEM 104.

CHEM 202 General Chemistry II **5 credits**
Continuation of the basic principles of chemistry including properties of solutions, kinetics, acids and bases, equilibria, buffers, precipitation reactions, electron transfer reactions, electrochemistry, entropy and free energy. Laboratory will reinforce lecture concepts.

Prerequisites: "C" (2.0) or higher in CHEM 201

CHEM 281 Biochemistry and Chemistry Professional**Foundations****1 credits**

The course will cover aspects of the ethical conduct of research, chemical safety, and preparation for a profession related to chemistry or biochemistry.

Prerequisites: CHEM 322

CHEM 299 Individual Study**1-6 credits****CHEM 305 Analytical Chemistry****4 credits**

Introduction to the principles of chemical analysis, with emphasis on classical methods of analysis. Lectures will stress the theory of chemical measurements and sample handling. Laboratory exercises will provide students with opportunities to explore calibration methods, method development, and established procedures for volumetric and gravimetric analyses. Basic atomic spectroscopy is also presented.

Prerequisites: "C" (2.0) or higher in CHEM 202

CHEM 316 Descriptive Inorganic Main Group Chemistry**3 credits**

This course is designed to survey descriptive main group chemistry and augment General Chemistry's introduction to solid state and nuclear chemistry.

Prerequisites: "C" (2.0) or higher in CHEM 202

CHEM 317 Transition Metal Chemistry**3 credits**

This course is designed to address transition metal chemistry, introduce bonding theory, nomenclature, reactivity and mechanisms for transition metal compounds. It will also address and use examples from bioinorganic chemistry and catalysis.

Prerequisites: "C" (2.0) or higher in CHEM 202

CHEM 322 Organic Chemistry I**4 credits**

Introduction to organic nomenclature, structure, bonding, chemical reactivity, organic acid-base reactions, mechanisms and stereochemistry. IR, MS, and NMR spectroscopy will be introduced. The chemistry of alkanes, alkyl halides, alkenes, alkynes, and alcohols will be covered. Laboratory illustrates synthetic techniques and the preparation and reactions of functional groups discussed during lecture.

Prerequisites: CHEM 202, "C" (2.0) or higher in CHEM 202.

CHEM 324 Organic Chemistry II**3 credits**

This course is a continuation Chem 322 and includes organic nomenclature, structure, bonding, chemical reactivity, organic acid-base reactions, and reaction mechanisms; the chemistry of ethers, aromatic and heterocyclic compounds, polyenes, ketones, aldehydes, amines, carboxylic acids and their derivatives, and alpha carbonyl compounds and synthetic transformations is covered.

Prerequisites: CHEM 322 with a "C" (2.0) or higher.

CHEM 325 Organic Chemistry II Lab**1 credits**

Laboratory will highlight common techniques including recrystallization, melting point determination, simple and fractional distillation, extraction, gas and thin layer chromatography, and chemical and spectroscopic qualitative analysis. Single and multi-step syntheses illustrating aromatic and carbonyl chemistry will be performed.

Prerequisites: CHEM 324

Corequisites: CHEM 324

CHEM 360 Principles of Biochemistry**4 credits**

Analysis of the structure and metabolism of biologically important compounds. This intermediate-level course is designed for students in the medical technology, food science, chemistry education, chemistry and pre-professional health majors. The laboratory teaches basic biochemical techniques.

Prerequisites: CHEM 322. CHEM 324 is strongly recommended.

CHEM 398 RISE Biochem Research**2 credits**

This course is designed to provide hands-on research experience to RISEbiochem scholars. Students will conduct and develop an original research project as a team. Students will be exposed to a variety of research methods to conduct their research projects. As early-stage researchers, emphasis will be placed on students building a solid foundation of laboratory techniques as well as understanding the process of scientific research that consists of formulation of a research plan, data collection, analysis of results, and interpretation of data. Students are required to maintain a detailed laboratory notebook and conduct multiple presentations of their findings.

Prerequisites: BIOL 105, CHEM 201

CHEM 407 Environmental Chemistry**3 credits**

The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated. Current research topics relevant to the field of environmental chemistry will also be addressed. Laboratory exercises will emphasize proper sampling technique and various analytical methods for quantifying environmentally important components.

Prerequisites: "C" (2.0) or higher in CHEM 305

CHEM 419 Physical Inorganic Chemistry Foundations**2 credits**

This course is designed to emphasize the theoretical foundations of physical inorganic chemistry. Course topics include: bonding theory, quantum mechanics and periodic trends, symmetry and group theory.

Prerequisites: "C" (2.0) or higher in CHEM 322, MATH 121

CHEM 423 Spectroscopic Determination of Structure**4 credits**

Spectroscopic techniques including nuclear magnetic resonance, infrared, and mass spectrometry for determining structural features of molecules will be covered. Spectroscopic methods emphasize interpretation of spectra, and also provide hands-on operation of the corresponding electronic instruments. The laboratory uses these techniques for the determination of the structures of a series of unknown compounds.

Prerequisites: CHEM 322

CHEM 424 Advanced Organic Chemistry**3 credits**

Advanced synthetic organic reactions and their mechanisms. Laboratory will include examples of some of this chemistry, and techniques for reaction monitoring and product purification.

Prerequisites: CHEM 324. "C" (2.0) or higher

CHEM 445 Physical Chemistry I**4 credits**

Detailed treatment of thermodynamics and chemical kinetics. Topics include equations of state, laws of thermodynamics, phase and reaction equilibrium, reaction kinetics, and thermodynamic properties of polymers, solutions, and of biochemical and electrochemical processes. "C" (2.0) or higher in all prerequisites.

Prerequisites: MATH 121, PHYS 211, CHEM 305

CHEM 446 Physical Chemistry II **3 credits**
Detailed treatment of quantum mechanics, spectroscopy, and statistical thermodynamics. Topics include the foundations of quantum mechanics, application of quantum mechanics to atomic and molecular structure, foundations of spectroscopic techniques, photophysics and photochemistry, statistical thermodynamics, and molecular aspects of reaction kinetics. "C" (2.0) or higher in all prerequisites.

Prerequisites: MATH 122, PHYS 212, CHEM 445

CHEM 450 Physical Chemistry Laboratory I **1 credit**
Laboratory to accompany CHEM 445. An advanced treatment of measurement theory and data analysis precedes a series of thermodynamic and kinetic experiments designed to complement topics treated in lecture to help students' independence and sophistication in planning, performing, and reporting experimental work.

Prerequisites: CHEM 445

CHEM 451 Physical Chemistry Laboratory II **1 credit**
Laboratory to accompany CHEM 446. Experiments and computational projects in quantum mechanics, spectroscopy, and statistical mechanics. The experiments and projects will continue to work toward the goal of increasing the students' independence and sophistication. Prereq: "C" (2.0) or better in CHEM 445; pre or coreq: CHEM 446

Prerequisites: CHEM 445

CHEM 460 Biochemistry I **3 credits**
Detailed analysis of the structures, properties, and functions of proteins, carbohydrates, and lipids; introduction to carbohydrate metabolism; theory for the purification and analysis of proteins. Concurrent enrollment in CHEM 465 is recommended.

Prerequisites: BIOL 106, CHEM 324. BIOL 106 or permission "C" (2.0) or higher in all prerequisites.

CHEM 461 Biochemistry II **3 credits**
Detailed analysis of the reactions involved in intermediary metabolism, translation, transcription, and replication.

Prerequisites: CHEM 460

CHEM 465 Biochemical Techniques I **2 credits**
A lecture/laboratory course, which presents methodology and instrumentation used to purify and analyze biomolecules. Techniques include chromatography, radioisotope techniques, polyacrylamide gel electrophoresis, spectrophotometry, and PCR analysis.

Prerequisites: Concurrent registration in CHEM 460 or completion of CHEM 460 with "C" or higher. CHEM 305 is highly recommended.

CHEM 466 Biochemical Techniques II **2 credits**
Students work in teams to solve biochemical research problems by analyzing data from experiments which they design.

CHEM 467 Biochemistry of Cancer and Therapeutics **3 credits**
This course will focus on the interface of cancer and medicine. Topics will provide a comprehensive overview of the hallmarks of cancers, mechanisms of tumorigenesis and metastasis, while simultaneously emphasizing drug design, mechanisms of action, and structure-activity relationships for targeting these pathways in precision medicine. Past/current treatments will be evaluated for their therapeutic benefits, side effects, and resistance mechanisms. Moreover, primary literature will serve to illustrate the concepts and how these malignancies are modeled in research for drug discovery and development.

Prerequisites: CHEM 360 or CHEM 460

CHEM 475 Instrumental Analysis **4 credits**
Theory and practice of modern instrumental methods including basic electronics. Special emphasis placed on sampling methods, analog and digital electronics, electrochemistry, spectrophotometric and chromatographic methods, surface and thin-film analysis and computer acquisition and data processing techniques.

Prerequisites: CHEM 305, PHYS 212 or PHYS 223.

CHEM 479 Teaching Physical Science **4 credits**
Methods and materials for teaching physical sciences in middle school through high school. Clinical experiences are required for the course.

Prerequisites: Consent

CHEM 481W Inquiry and Writing in Biochemistry and Chemistry **3 credits**
In this course, students will develop discipline-specific skills in critical reading and evaluation of the primary and secondary literature, including the use of libraries and databases to identify reliable sources. Work will culminate in a literature review that synthesizes the current state of research in synthetic polymers, biological macromolecules, supramolecular aggregates and/or meso/nanoscale materials with consideration toward future directions. Throughout the course, students will participate in peer review, revision of written work, learn key ethical considerations of writing, develop better writing mechanics and understand different conventions of scientific writing all while increasing their familiarity in the topics above.

CHEM 489 Senior Capstone **1 credits**
Capstone course for majors in Chemistry, Biochemistry, and Chemistry Teaching. During this course, students will present their mentored undergraduate research projects OR present a literature review synthesized from primary literature articles. Forums for presentation include an oral presentation and poster presentation.

Prerequisites: CHEM 445 or CHEM 465

CHEM 490 Workshop **1-6 credits**
CHEM 497 Internship **1-16 credits**
CHEM 498 Undergraduate Research **1-6 credits**
This is research mentored by a faculty member in the Department. The Research mentor will work with the student to create a document outlining research goals and time commitment for each credit or registration attempt. In order for CHEM 498 credits to apply to the student's program of study as unrestricted elective credits, the student must submit a formal written report that meets ACS or ASBMB requirements at the end of their research.

CHEM 499 Individual Study **1-6 credits**

Chinese

CHIN 101 Elementary Mandarin I 5 credits

Beginning Mandarin I is a practical introductory language course with simple, graded activities on essential daily topics. Students will begin to work orally and with the Chinese writing systems, while developing early listening and reading skills.

CHIN 102 Elementary Mandarin II 5 credits

Beginning Mandarin II is a practical introductory language course with simple, graded activities on essential daily topics. Students will continue to work orally and with the Chinese writing systems, while developing early listening and reading skills.

Civil Engineering

CIVE 100 Explorations in Engineering 1 credits

This course offers an introduction to the various disciplines of engineering and their relationship to the principles of physics and mathematics. Students are prepared for academic success and the transition into an engineering program.

CIVE 101 Introduction to Engineering – Civil 2 credits

To prepare the students for a career in engineering with some emphasis in civil; introduce the engineering fundamentals and the skills necessary to have a successful learning experience; and to prepare students for engineering education and profession through interactions with upper-class engineering students and practicing engineers.

CIVE 145 CAD for Civil Engineering 2 credits

Basic computer applications for drafting and designing civil engineering projects. Structure and use of standard CAD software. Basic orthographic construction and projections, and development of different types of drawings - sections, plan and profile, and construction details.

CIVE 201 Introduction to Problem Solving and Civil Engineering Design 2 credits

Introduction to the design concepts of civil engineering projects including presentations, codes and standards, construction drawings, and public hearing; problem solving skills for civil engineering analysis and design including the use of appropriate computational tools and programming logic. Includes laboratory component.

Prerequisites: CIVE 101

CIVE 235 Properties of Civil Engineering Materials 3 credits

Mechanical behavior and properties of civil engineering materials. Microstructure, response to stress, creep, fatigue, fracture and failure. Composition, application and construction of steel, concrete, asphalt, aggregates, steel, timber, composites and other materials. Includes laboratory component.

Prerequisites: ME 212

CIVE 271 Civil Engineering Measurements 2 credits

Basic civil engineering measurements as relates to construction layout, including distances, angles, bearings, elevations, mapping, and positioning. Includes laboratory component.

Prerequisites: Select One: MATH 113, MATH 115, MATH 121

CIVE 297 Internship 1-4 credits

Internship

CIVE 321 Fluid Mechanics 3 credits

Introduction to fluid properties, fluid statics, buoyancy, fluid kinematics, Bernoulli's equation, control volume and differential approach to flow conservation equations, dimensional analysis, similitude, viscous flow in pipes, flow over immersed bodies, and pumps. Includes significant design component.

Prerequisites: ME 214. Select one: ME 241 or ME 299

CIVE 340 Structural Analysis 3 credits

Minimum design loads for buildings using ASCE 7 guidelines and load distribution. Analysis of determinate structural systems including the case of moving loads. Analysis of indeterminate structures using the flexibility and moment distribution methods. Use of software to enhance the analysis.

Prerequisites: CIVE 223 or ME 223

CIVE 350 Hydraulics and Hydrology 4 credits

Concept of hydraulics such as pipe flow and open channel flow. Hydrologic principles such as weather patterns; precipitation measurement and distribution, abstractions, and runoff; storm hydrograph and peak flow analysis. Design includes flood design, reservoir and channel routing. Includes significant design component.

Prerequisites: CIVE 321 or ME 321, ME 291

CIVE 360 Geotechnical Engineering 4 credits

Study of soil behaviors and their classifications; index properties. Applications of mechanics principles to soils as an engineering material, consolidation theory, compaction theory, effective stresses, shear strength; earth pressure and slope stability. Elements of foundation designs. Includes significant design component.

Prerequisites: CIVE 223 or ME 223

Corequisites: CIVE 321 or ME 321

CIVE 370W Transportation Engineering 4 credits

Introduction to Transportation systems; land use and transportation interaction, planning, and traffic operations; transportation decision making using economic analysis. Introduction to design, construction, maintenance, and operation of various transportation modes. Includes significant design component.

Prerequisites: CIVE 145, ME 291

CIVE 380 Environmental Engineering 3 credits

Introduction of the fundamental chemical, biological and physical principles of environmental engineering for water and wastewater treatment and distribution systems, solid waste management, air pollution control, and the analysis of air quality, surface water, and ground water. Includes significant design component.

Prerequisites: Select one: CHEM 201 or GEOL 291

CIVE 398 CPT: Co-Operative Experience **0 credits**

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: CIVE 201. At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

CIVE 401W Civil Engineering Design I **2 credits**

Practical civil engineering design project with real world constraints. This course focuses on the planning and formulation of a project, and the presentation of preliminary findings to the public. Includes significant design component.

Prerequisites: ENG 271W, CIVE 340, CIVE 350, CIVE 360, CIVE 370W

CIVE 402W Civil Engineering Design II **3 credits**

Practical civil engineering design project with real world constraints. Focuses on the engineering analysis, design, and economic analysis of the project. Includes significant design component. Students will prepare for and complete the Fundamentals of Engineering exam.

Prerequisites: CIVE 401W

CIVE 412 Advanced Surveying **3 credits**

Advanced surveying techniques related to control surveys, coordinate systems, error identification, adjustment computation, ethics and client relations, and techniques specific to a range of applications including: land development, highway layout, mining, hydrography and riparian boundaries.

CIVE 415 Boundary Survey and Law **3 credits**

History and concept of boundaries; boundary location procedures; property ownership and conveyance; metes and bounds; legal research regarding boundaries; rules of boundary evidence including classification and evaluation; land description composition; easements.

CIVE 417 Surveying Capstone **2 credits**

A practical surveying project with real world constraints. Focuses on residential or commercial land development incorporating: subdivision and land development regulatory processes, zoning issues, elements of civil infrastructure design, boundary description and location, grading and earthwork, utility design and layout, and storm water management. Supports preparation for the Fundamentals of Surveying licensure examination.

CIVE 432 Properties of Concrete **3 credits**

Selected studies in the properties and design of concrete mixtures, cement chemistry, concrete durability, specialty concrete, construction, admixtures, and quality control. Includes laboratory and significant design components.

Prerequisites: ME 223

CIVE 435 Civil Engineering Experimentation I **2 credits**

Provides students with hands-on experience in the testing of civil engineering materials including concrete, metals and structural systems. Includes laboratory component.

Prerequisites: CIVE 235, CIVE 340

CIVE 436 Civil Engineering Experimentation II **2 credits**

Provides students with hands-on experience in the testing of civil engineering materials including soil and asphalt, fluid mechanics, hydraulics, and hydrology. Includes laboratory component.

Prerequisites: CIVE 350, CIVE 360, CIVE 380

CIVE 446 Reinforced Concrete Design **3 credits**

Design of reinforced concrete beams, columns, slabs, and structural foundations according to ACI 318 Building Code requirements. Includes significant design component.

Prerequisites: CIVE 340

CIVE 447 Prestressed Concrete Design **3 credits**

Design of prestressed concrete structures. Basic materials and prestress loss mechanisms. Flexure, shear, and deflections of prestressed concrete beams. Load-moment interaction curves for columns. Prestressed concrete bridge girders. The use of software is expected. Includes significant design component.

Prerequisites: CIVE 340

CIVE 448 Steel Design **3 credits**

Behavior and properties of structural steel. Design of tension members, compression members, beams, and connections using the LRFD method. Use of the AISC Steel Construction Manual is required. Includes significant design component.

Prerequisites: CIVE 340

CIVE 452 Open Channel Flow **3 credits**

Analysis of open channel flow systems. Includes natural channels, designed channels, flow transitions, steady flow, unsteady flow, uniform flow, and non-uniform flow. Includes significant design component.

Prerequisites: CIVE 350

CIVE 454 Hydraulic Structures **3 credits**

Analysis and design of water regulating structures. Includes dams, spillways, gates, dikes, levees, stilling basins, water distribution systems, and various simpler structures. Environmental impacts of hydraulic structures are discussed throughout the course. Includes significant design component.

Prerequisites: CIVE 350

CIVE 455 Agricultural Drainage and Runoff **3 credits**

Application of hydraulics, hydrology, soil and crop properties to the design of agricultural drainage systems. Environmental impacts of traditional drainage systems, current best management practices to decrease these impacts and emerging trends will be discussed throughout the course. Includes significant design component.

Prerequisites: CIVE 350

CIVE 458 Stormwater Management **3 credits**

Application of fluid mechanics and hydrology to the design of stormwater management facilities. Environmental impacts of stormwater management are discussed throughout the course. Includes significant design component.

Prerequisites: CIVE 350

CIVE 461 Fundamentals of Pavement Design **3 credits**
Performance and design of rigid, flexible, and composite pavement structures with emphasis on modern pavement design procedures. Principles of pavement maintenance, rehabilitation, and pavement management systems. Materials characterization, tests, quality control, and life cycle cost analysis. Includes significant design component.

Prerequisites: ME 223, CIVE 235

CIVE 465 Foundation Design **3 credits**
Classification of foundations; applications of fundamental soil mechanics to design and analysis of soil-structure systems; design and computer application of shallow and deep foundations, piles and caissons, retaining structures. Introduction to rock mechanics. Includes significant design component.

Prerequisites: CIVE 360

CIVE 467 Earth Structures **3 credits**
Design and construction of traditional embankments, including slope stability analysis; earth and rockfill dams, introduction to seepage analysis; excavations, earth retaining structures, and other geotechnical structures. Geotechnical software application in analysis and design. Includes significant design component.

Prerequisites: CIVE 360

CIVE 470 Traffic Engineering **3 credits**
Elements of traffic engineering including road use, vehicle and roadway systems; traffic flow theory; traffic studies and data collections; traffic control devices; principles of intersecting signalization; capacity and level of service; analysis of freeways, rural highways and intersections using computer software for traffic operations and management. Includes significant design component.

Prerequisites: CIVE 370W

CIVE 471 Highway Planning and Design **3 credits**
Classification and design process of highways; development and use of design controls; criteria, and highway design elements; design of vertical and horizontal alignment, and establishment of sight distances; design of cross sections, intersections, and interchanges. Extensive use of CAD software. Includes significant design component.

Prerequisites: CIVE 370W

CIVE 475 Rural and Agricultural Transportation Design **3 credits**
Introduction to rural and agricultural transportation topics including transport economics, freight transportation, multimodal issues and asset management. Introduction to driver, pedestrian, and vehicular characteristics. Traffic characteristics; highway capacity; traffic studies and analyses. Principles of traffic control for improved highway traffic service. Includes significant design component.

Prerequisites: CIVE 370W

CIVE 476 Planning and Design of Airports **3 credits**
Development and design of airport facilities and the integration of multiple disciplines including runway orientation and capacity, terminal facilities, forecasting, planning, noise, airspace utilization, parking, lighting, and construction. Includes significant design component.

Prerequisites: CIVE 370W

CIVE 478W Transportation Asset Management **3 credits**
Engineering management techniques for maintaining and managing infrastructure assets. Systematic approach to management through value engineering, engineering economics, and life cycle cost analysis. Selection and scheduling of maintenance activities. Analysis of network-wide resource needs. Project level analysis. Transportation Asset Management Plans. Includes significant design component.

Prerequisites: CIVE 370W

CIVE 481 Water & Wastewater Treatment, Collection & Distribution **3 credits**
Overview of municipal water and wastewater treatment and distribution practices. Application of chemical, biological and physical principles to design and the operation of water and wastewater treatment and distribution systems. Includes significant design component.

Prerequisites: CIVE 380

CIVE 484 Landfill and Hazardous Waste Engineering **3 credits**
This course will be taught as a classroom-based course with a combination of lecture, individual and group projects, reading, homework, discussion, review, and examinations. The goal of the course is to develop competency in the design and implementation of landfill design and hazardous waste remediation, with understanding of both performance and cost implications to all choices.

Prerequisites: CIVE 380

CIVE 491 In-Service **1-4 credits**
May be repeated for credit on each different topic.

CIVE 494 Global Experience in Engineering and Technology **1 credits**
This class provides students pursuing a minor in Global Solutions in Engineering and Technology with an opportunity to explore a set of topics related to achieving success in advance of and following an international experience (internship, study abroad, etc.). Speakers will include faculty, graduate students, visiting researchers and industry members as well as student participants. Returning students will be required to participate in mentoring of students preparing for their international experience and provide written and/or oral presentations of various topics during the semester. This course is required both before and after participation in the international experience (min. 2 cr.)

CIVE 497 Internship **1-6 credits**
CIVE 499 Individual Study **1-6 credits**

Communications

COMM 100 Fundamentals of Communication **3 credits**
A course designed to improve students' understanding in communication, including the areas of interpersonal, nonverbal, listening, small group and public speaking.

COMM 102 Public Speaking **3 credits**
A course in communication principles to develop skills in the analysis and presentation of speeches.

COMM 105W Interpersonal Communication **4 credits**
A course blending theory and practice to help individuals build effective relationships through improved communication.

COMM 110 Media and Society	4 credits	COMM 242 Preparing for Advocacy	4 credits
Nature, functions, responsibilities and effects of the media in contemporary society. Diverse Cultures: Purple		Introduction to advocacy through communication and mass media, including principles, theories, practices, and ethics.	
COMM 183 Introduction to Game Design and Storytelling	4 credits	COMM 260 Principles of Visual Mass Media	4 credits
Provides an introduction to storytelling and design in games through their analysis and application. Students will design their own basic game as part of the class.		Exploration of the basic principles of visual media design, stressing the significance of images in a mass media society. Special focus on contextualizing historical and technological changes affecting image production for mass media. Diverse Cultures: Purple	
COMM 198 Newsgathering Practicum	1 credits	COMM 280 Social Media and Society	4 credits
This course provides practical experience in writing and editing stories for campus news entities, such as the newspaper or radio station or other communications organizations, working under the supervision of a faculty advisor. Minimum of 2 hours per week. Cannot be substituted for MASS498 Internship. Diverse Cultures: Purple		Explores social media and their impacts on society through consideration of technologies, social networks, markets, communities, politics and social movements, and major companies. Special focus on individuals' roles as users, producers, consumers, and laborers toward becoming responsible online citizens.	
COMM 199 Public Relations Practicum	1 credits	COMM 300 Foundation Seminar	2 credits
This course provides practical experience in public relations for campus media entities, such as university media relations, esports or sports media, and other communications organizations, working under the supervision of a faculty adviser. Minimum of 2 hours per week. Cannot be substituted for MASS498 Internship.		Introduces students to the study of communication and media including research and career paths.	
COMM 201 Small Group Communication	2-4 credits	COMM 301 Communication Studies: Approaches and Perspectives	4 credits
Development of communication skills for working with others in small group situations.		Course is designed to provide the student with an understanding of the history, scholarly writing, and academic journals in the communication discipline, thus preparing the student for more advanced courses in the Department of Communication Studies.	
COMM 202 Nonverbal Communication	4 credits	COMM 302 Argumentation	4 credits
Investigation of the concepts and theories of nonverbal communication. Designed to assist students in increasing their awareness and understanding of their nonverbal communication and in analyzing and understanding the nonverbal communication of others.		An exploration of the field of argument, addressing structure, types and critical analysis. Students will learn to identify types of reasoning, argument fallacies and pseudo-reasoning. Students will apply concepts in the construction and refutation of argument positions.	
COMM 203 Intercultural Communication	4 credits	COMM 306 Strategic Communication Research Methods	4 credits
The course explores communication with people from other cultures, why misunderstandings occur and how to build clearer and more productive cross-cultural relationships. Diverse Cultures: Purple		An introduction to the theory and practice of conducting research in communication and media.	
COMM 215 Effective Listening	2 credits	COMM 307 Data Storytelling	4 credits
This course is designed to provide students with skills of effective listening, and the ability to apply that knowledge in a variety of educational and professional settings.		In this course, students learn how to translate raw numbers into comprehensible narratives. These stories take many forms, from infographics to charts and memes. Students will learn how to use storytelling techniques to connect data with audiences and stakeholders so they can make informed decisions.	
COMM 217 Experiential Storytelling	4 credits	COMM 310 Performance of Literature	4 credits
Devoted to the development of students' understanding of the strategies and practices of communication in cultural contexts. The course is experiential involving travel outside the United States. Diverse Cultures: Gold		This course is designed to develop the skills to complete the artistic process of studying literature through performance and sharing that study with an audience.	
COMM 220 Speech and Debate	0-4 credits	COMM 312 Professional Communication and Interviewing	4 credits
Beginner skills-building course that introduces students to hands-on speech and debate construction and practice. Students receive one-on-one coaching in outlining, research, organization, and delivery. Requirements vary based on number of credits and course can be repeated.		Designed to help students improve oral communication skills in the workplace. The emphasis is on the preparation and presentation of public messages in formats commonly used in business and professional settings. Listening as an oral communication skill in the workplace will be explored, as will the role of intercultural communication in the workplace. Individual speeches, group presentations, and interviews are the major presentations.	
COMM 221W Media Writing Fundamentals	4 credits	COMM 314 Music Management and Concert Production	4 credits
Basic techniques of gathering information and writing readable and accurate media stories.		Students learn about managing a concert production, working with promoters, finding artists, and creating and negotiating contracts. The course includes participation in a concert production event.	
COMM 224 Foundations in Music Industry	4 credits	COMM 315 Ethics, Free Speech, and Free Press	4 credits
A survey of career opportunities in Music Industry.		This course is divided into two sections. First, the class explores ethical parameters involved in communication from a variety of social, cultural, and disciplinary perspectives. Second, the class investigates historic and contemporary standards and issues involving freedom of speech and press.	
COMM 233 Public Relations Principles	4 credits		
Survey of current practices and problems in the field of public relations. Emphasizes successful case histories and planning techniques.			
COMM 240 Special Topics	1-4 credits		
Special interest courses devoted to specific topics within the field of communication studies. Topics vary, and course may be retaken for credit under different topic headings.			

COMM 320 Advanced Speech and Debate 0-4 credits
Activity course involving participation in intercollegiate forensics competition and leadership/professional development. Students will build upon skills established in CMST 220 or through prior speech and debate experience to create, practice and compete in creative interpretive events, public address speeches, limited preparation events, and/or parli/LD debate. Students will also gain professional development in leadership experiences that enhance PR, team-building, and recruitment strategies for the team.

COMM 321 Argumentation and Debate 4 credits
Development of skills in the analysis, application and evaluation of argumentative communication.

COMM 325W Reporting and Editing 4 credits
Discussion of and practice in reporting about public affairs and social issues, plus examination of copy editing and headline writing for traditional and new media.

COMM 326 Interpersonal Communication in Leadership 4 credits
Interpersonal communication skills are applied to psychological, social, and cultural theories of leadership to investigate how to successfully achieve goals through the establishment of relationships with others. Strategies of social influence, relational competence, equity and inclusion are discussed relative to the roles formal and informal leaders play across society.

COMM 330W Multimedia Storytelling 4 credits
Creation of photo, audio, video, and written content for multi-platform distribution. Includes critical consideration and application of content creation tools, social media management tools, and legal and ethical issues.

COMM 333 Advanced Public Communication 4 credits
This is an advanced course in public presentation focused on improving presentational skills of speech delivery and language choice.

COMM 334 Writing & Speaking for Broadcast 4 credits
Planning, writing and delivering of broadcast news.

COMM 335 Communication and Community 4 credits
Students explore storytelling and other communicative practices to create and sustain the communities in which we live. Students explore rituals, symbols, and places perceived as mundane. Students analyze and reconstruct why community practices make up the foundation of our civic lives.

COMM 340 Special Topics 1-4 credits
Special interest courses devoted to specific topics within the field of communication studies. Topics vary, and course may be retaken for credit under different topic headings.

COMM 351 Visual Storytelling 4 credits
Instruction in the fundamental concepts, terminology, techniques and applications of digital imaging in mass communication. Development of the basic skills necessary to design, create, manage and distribute photographic and video digital images in mass communication.

COMM 353 Creative Advertising Principles 4 credits
Addresses the principles and practices of advertising, emphasizing creative media strategies; strategic decision-making; and historical, social, legal, and economic influences. Students will research and develop an advertising implementation plan.

COMM 360 Applied Media Design 4 credits
Practicum in typography, design, layout and production processes, including job budgeting and estimating, for newspapers, magazines, newsletters, brochures, posters, annual reports, direct mail and related print materials used public relations and journalism. Emphasis on graphic design software.

COMM 370 Foundations of Health Communication 4 credits
Communication impacts every facet of our experience of health and well-being. This course introduces students to the subdiscipline of health communication, its key concepts, and important theories and research in the field.

COMM 374 Digital Music 1 4 credits
An introduction to musical creativity using technology, audio recording, and computer-based music. Explore audio processing, routing, and live sound design drawing from experimental cinema, electroacoustics, EDM, and contemporary music. Ability to read music is not required.

COMM 375 Projects in Music Industry 4 credits
Introduces students to multiple areas of the music industry through hands-on experience in music-related projects including concert promotion, record releases, social media marketing, community activation, and other related professional areas.

COMM 383 Game Theory and Criticism 4 credits
Explores and analyzes theories of game studies through examination of games, their development, history, representation, study, and industry toward considering their impacts on society.

COMM 398 CPT: Co-Operative Experience 0 credits
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

COMM 400 Advanced Seminar 4 credits
Students engage in an applied research or creative group project in a faculty member's area of interest. The project is led by the faculty member. The course may be repeated in different projects.

COMM 405 Strategic Advocacy Campaigns 4 credits
A focus on the theory and practice of developing advocacy campaigns. Topics include audience research, message creation, message distribution, network analysis, and campaign effectiveness.

COMM 409 Performance Studies 4 credits
This course is an overview of key performance studies concepts, including cultural performance, performance of everyday life, theories of play, social influence, and identity performance. Students will develop and present performances as a means to understand theoretical concepts.

COMM 410 Topics in Relational Communication 1-4 credits
Special interest courses devoted to specific topics within relationship communication. Topics vary, and course may be retaken for credit under different topic headings.

COMM 412 Organizational Communication 4 credits
This course is designed to develop an understanding of communication studies in the organizational context. The course will aid each individual in working more effectively within any type of organization through exposure to major theories and works in the area of organizational communication.

COMM 414 Music in the Marketplace 4 credits
An overview of the Music Industry including music publishing, copyright, public relations, audience development, financial management, fundraising, donor development, and grant writing.

COMM 415 Topics in Rhetoric and Culture 1-4 credits
Special interest courses devoted to specific topics within the intersecting fields of rhetoric and culture. Topics vary, and course may be retaken for credit under different topic headings.

COMM 416 Topics in American Public Address 1-4 credits

Special interest courses devoted to specific topics within field of American Public Address. Topics vary, and course may be retaken for credit under different topic headings.

COMM 417 Experiential Storytelling 4 credits

This is a special interest course devoted to the development of students' understanding of the strategies and practices of communication in cultural contexts. The course is an experiential course involving travel, typically outside the United States. Diverse Cultures: Gold

COMM 418 Gender, Race, and Identity 4 credits

This course interrogates difference as a communicative production. Students will examine social identities - in the form of race, social class, sex/gender/sexuality, age, and ability - as socially constructed communication phenomena used to understand the self and others. The course will involve both historical and contemporary investigations of how social identities have been produced through time, and how they continue to affect - and be affected by - everyday communication practices. In short, this course will investigate the dynamic relationship between culture and identity, and how communication facilitates that relationship.

COMM 419 Gender, Race, and Media 4 credits

This class uses a critical and cultural approach to explore the intersections of gender, race, and media across multiple media platforms, including film, television, news, social media, and other emerging media.

COMM 420 Mass Media History 4 credits

The course provides explanations and analysis of the historical evolution of American mass communication from the colonial period of the 1600s to the present. Students will study media history within the broader contexts of American social and cultural history. Developing a deeper understanding of how mass media evolved will lead to a deeper and more effective comprehension of the roles and effects of mass communication in today's society.

COMM 421 Communication Studies Teaching and Coaching Methods 1-4 credits

The course fulfills secondary licensure requirements for Communication Arts and Literature. First, the course covers teaching methods and materials needed to develop units for communication courses in grades 5-12. Second, the course covers methods and techniques in the development of competitive speech programs in grades 5-12.

COMM 425 Crisis Communication 4 credits

Crisis Communication is an integral part of public relations. A crisis communications strategy is critical for organizations of every size. This course examines crisis typologies, theoretical approaches and applications, and crisis management and communication strategies.

COMM 429 Aesthetics and Culture in Music Industry 4 credits

Examines a broad grouping of musicians, companies, and arts organizations to better understand their growth and development. By understanding the relative value propositions of these current and legacy organizations, students gain an understanding of how to place themselves within a larger cultural context.

COMM 430 Social Movements and Advocacy 4 credits

A critical analysis of contemporary social movement discourse and the means for advocacy by a movement. We examine communication theories, issues, trends, social movement processes, advocacy strategies, and how it all ties back into the field of contemporary communication studies.

COMM 432 Grassroots Advocacy and Organizing 4 credits

Grassroots campaigning is a proven strategy of civic discourse, engagement, and advocacy. Grassroots organizing works from the bottom up and is uniquely suited to engage historically marginalized constituencies and to amplify the voiced of traditionally excluded populations. This course emphasizes a practical, skills-based approach grassroots advocacy using communication strategies and tactics.

COMM 434W Public Relations Writing 4 credits

Practical skill in the development of public relations writing including news releases, brochures, public service announcements, pitch letters, annual reports.

COMM 435 Forensics Pedagogy 4 credits

Course is designed to give students a theoretical understanding of competitive speech and debate.

COMM 436W Specialized Writing 4 credits

In this advanced nonfiction writing course, students will analyze examples of professional media writing and employ techniques to create a portfolio of persuasive, informative, and personal writing for a variety of media markets.

COMM 437 Legal Aspects of the Music Industry 4 credits

Covers the legal framework of the music industry in the U.S. and abroad. Emphasis is placed on the publishing business, recording contracts, vertically integrated media deals, and the entertainment business.

COMM 440 Special Topics 1-4 credits

A course designed for students who have a general interest in communication studies. Content of each special topics course will be different. May be retaken for credit.

COMM 444 Music Promotion and Social Media 4 credits

Examines promotions from three perspectives: 1) The promotion of music and artists. 2) The promotion of other products, services and causes through using music. 3) The presentation and promotion of oneself as a music expert.

COMM 445 Conflict Management 4 credits

This theory and research-oriented course examines the relationship between communication and conflict, and is designed to provide students with knowledge and skills in dealing with conflict situations.

COMM 450 Strategic Communications Case Studies 4 credits

Exploration of historic and contemporary examples of strategic public relations successes and failures. Analysis of public relations practices related to these cases, including planning, communication, evaluation exercises and management responsibilities.

COMM 457 Multimedia Production for Agriculture, Food & Life Sciences 4 credits

Trains students in mass communication production within the contexts of agriculture, food, and life sciences to create multimedia content about science, technology, and other complex agricultural issues. Drawing on interviews, research, and theories, students will create targeted, multimedia campaigns for expert and general audiences.

COMM 460 Dialogue, Discussion, and Debate 4 credits

This course is designed to provide students with the theoretical foundations necessary to both participate and critique arguments. Students will engage contemporary theories of argumentation and apply those theories in discussion and formal debate.

COMM 464 AMP Ensemble 1-4 credits

Participate in the performance, composition, audio, video, lighting aspects of the ensemble on and off campus.

COMM 465 Global Media 4 credits
This course focuses on the theory and criticism of mass communication in global contexts. It trains students to analyze and evaluate global media in cultural contexts toward becoming media literate consumers and producers. Course is taught in English.

COMM 469 Advocacy Documentary Production 4 credits
A hands-on introduction to advocacy documentary production, from preproduction to completed works. Emphasis on working with underrepresented groups and individuals through advocacy organizations. No previous production skills are required to take this course.

COMM 470 Topics in Health Communication 4 credits
Special interest courses devoted to specific topics within health communication. Topics vary, and course may be retaken for credit under different topic headings.

COMM 473 Interactive Storytelling 4 credits
Hands-on production of interactive documentary content for online audiences. Special focus may include web series, docu games, interactive documentary, and virtual and augmented reality.

COMM 474 Digital Music 2 4 credits
Designed to explore the analytical structure of songs from their conception to production. Students examine a variety of songs and participate in songwriting, production, and analysis.

COMM 475 Recording Studio 1-4 credits
Recording Studio is focused on project-based music production and recording.

COMM 483 Serious Game Design and Criticism 4 credits
Examines serious game theory and design principles in training simulations, persuasive games, and news games. Using these theories and principles, students will research, develop, test, and evaluate their own serious game.

COMM 484 Creative Audio Production 4 credits
Examines advanced aspects of songwriting composition and production. Topics include production-oriented songwriting analysis and composition and lead sheet design.

COMM 494 Senior Capstone Seminar 2 credits
Focused on guiding students through the final steps in their major including career preparation, networking, interviewing, and the job or graduate school application process.

COMM 495 Mass Media Workshop 1-4 credits
Discussion and hands-on experience involving mass media activities. Topic varies.

COMM 496 Capstone 1 credits
Students synthesize research and learning and/or prepare portfolios and job application materials. Course must be taken in the last semester in the major.

COMM 497 Teaching Internship 1-12 credits
First-hand experience in the classroom assisting a faculty member.

COMM 498 Internship 1, 5, 6, 7, 8, 9, 10, 11, 12 credits
COMM 499 (1-2) Individual Study 1-2 credits
Directed research on a mass media topic chosen by the student.

Communication Disorders

CDIS 201 Observation of Human Communication 3 credits
This course will focus on observing human communication in a variety of contexts, practicing the skill of observation of the communication of others, analyzing communication interactions, and modifying one's own communication to bring forth the unconscious knowledge.

CDIS 205 Beginning American Sign Language - Level I 3 credits
Beginning ASL - Level I aims to develop a basic understanding and use of American Sign Language through learning parameters of sign, fingerspelling, basic grammar and a basic understanding of Deaf culture.

CDIS 220 Basic Audiology 3 credits
Audiology is the study of both hearing and balance. In this course we will learn about the anatomy and physiology of the hearing and balance systems, common changes in hearing and balance, how we assess our hearing and balance systems, how we interpret and present the results to the patient and discuss management options for hearing and balance. In addition to the procedures, we will discuss how to provide person-centered care for each step.

CDIS 290 Introduction to Communication Disorders 3 credits
This course will introduce a wide range of communication disorders affecting children and adult population. We will explore how the brain produces and understands speech, language and hearing. Neurological, anatomical, physiological, sensory, cognitive and linguistic liberation components of communication will be discussed. You will learn to identify a communication disorder based on the origin of the disorder, characteristics of the disorder, related assessment and intervention methods, and an impact of the disorder on one's daily life (for example, home, school, work, and/or community). You will learn how systemic racism affects linguistic diversity and equity in speech-language and hearing sciences. Diverse Cultures: Purple

CDIS 291 Individual Study 1-3 credits
CDIS 306 Intermediate American Sign Language - Level II 3 credits
Intermediate American Sign Language - Level II builds off knowledge and skills obtained in Level I. Expands on understanding and use of more complex grammar, classifiers, and social conversation.

CDIS 307 Advanced I American Sign Language - Level III 3 credits
Advanced I American Sign Language - Level III involves more extensive use of classifiers, labeling, social conversation and increased ability to be fluent, smooth and have confidence and flow in signing.

CDIS 308 Conversations in American Sign Language 1 credits
This course is a repeatable, 1 credit course for students who would like to continue to use and maintain their conversational language skills in American Sign Language (ASL). It is highly recommended that students have at least a basic understanding and use of ASL (Level II).

CDIS 312 Speech and Language Development 3 credits
This course will focus on children's speech and language development. Observing children has a practical application by linking theory to practice. Students can establish language-rich environments to support children's language and literacy development by understanding speech and language development processes using an equity and culturally humble lens.

CDIS 320 Beginning and Intermediate Audiometrics 2 credits

Audiometrics is a clinical experience (practicum) for undergraduate students interested in speech-language pathology and audiology. Students will observe and perform basic evaluation procedures such as otoscopy, pure-tone audiometry, speech testing, and immittance testing with clinical instruction. Students will engage in the clinical process from preparation for an evaluation through reporting out the results and making recommendations based on a person-centered care model. We will discuss the importance of person-centered care and will have reflection journals after seeing a patient to create dialogue on what went well and things to continue practicing.

CDIS 322 Speech and Hearing Science 3 credits

This course is designed to provide the students with a comprehensive knowledge base of speech and hearing sciences. The major emphasis is on examining the speech chain, how speech and hearing science fits into this model, apply concepts to real-life scenarios, and what can happen when changes occur in the speech chain.

CDIS 346 Cultural Humility in Communication Sciences and Disorders 3 credits

This course addresses overall equity, inclusion and diversity issues in the field of Communication Sciences & Disorders by specifically exploring cultural humility and identity and how that impacts client/caregiver and therapeutic interactions in diverse settings. Intersectionality, race, ethnicity, linguistics, sexuality, and gender will be explored.

CDIS 350W Interprofessional Practice and Research 3 credits

This course will explore interprofessional practice and research design with emphasis related to the areas of allied health and nursing sciences and disciplines. Basic overview of research methodologies commonly utilized in health sciences and approaches to interprofessional research will be explored through review of original research. Students will be required to produce and revise scientific writing with specific focus on interprofessional studies. Team-based problem centered research questions will be developed and investigated using various research methodology and interprofessional practice best standards with current health-related issues.

CDIS 392 Phonetics 3 credits

The International Phonetic Alphabet is a critical tool for analyzing and transcribing the speech sounds of world languages in a universally understood way. It is particularly useful for speech-language pathologists tasked with assessing and treating speech-sound and motor speech disorders in adults and children. This course is designed to teach students the International Phonetic Alphabet in order to transcribe and analyze the speech of speakers of General American English recognizing regional, dialectal and linguistic variations in the speech sound productions of all individuals.

CDIS 394 Applied Anatomy and Physiology 3 credits

In-depth study of structures and functions associated with communication and swallowing processes. These include selected parts of the nervous system, respiratory system, larynx, pharynx, oral cavity, articulators, and the hearing mechanism. Information is framed within a clinical perspective to allow insight into how these mechanisms relate to communication impairments and associated sequela. Gender, culture, and issues such as access to health care and health information will be discussed.

CDIS 401 Hearing Disorders 3 credits

This course is designed to provide students with the knowledge base of various changes that can occur to the auditory and vestibular systems. It will explore the range of impact these changes can have as it relates to various aspects of life, such as education, work, general communication, and social life. We will also discuss health inequities and the impact on hearing and balance health and the patient.

CDIS 402 Child Language Disorders 2 credits

In this course, students learn to describe the characteristics and specific patterns of language disorders in children and issues that surround them, including those relating to diversity, equity, and inclusion. Assorted topics detailing the identification and management of children with language impairment are covered.

CDIS 403 Child Language Disorders Lab 1 credits

Lab associated with CDIS 402. Practice in applying course content to the language of children.

CDIS 404 Deaf Studies: Deaf Culture, History and Social Justice 3 credits

This course will explore the language, culture, history, and contemporary issues of American Deaf people. Utilizing readings, lecture, and group discussion; students will learn about the linguistic and cultural aspect, oppression, timeline of deaf history, communication strategies and their effectiveness in terms of learning a language, as well as issues that are still existing in the deaf community.

CDIS 407 Advanced II American Sign Language - Level IV 3 credits

This course is a continuation of Advanced knowledge in American Sign Language. Fluent, social and academic use and understanding of sign language will be explored as well as continued expansion of knowledge of Deaf Culture and Deaf Community.

Prerequisites: CDIS 306, CDS 307

CDIS 408 Seminar in Central Auditory Processing Disorders 3 credits

Students will learn the definition of central auditory processing disorders (CAPD), as well as the controversies surrounding the diagnosis of the disorder. The neuroanatomy and physiology related to auditory processing will also be covered in order to understand the diversity involved in the diagnostic and management methods of CAPD. Students will learn the appropriate test batteries, the diagnostic team involved, the inclusion of a multidisciplinary team approach and treatment/management options for CAPD. This course would be beneficial to education majors, CDIS majors, Educational Psychology.

CDIS 409W Literacy Foundations and Disorders for Speech-Language Pathologists 3 credits

This course is designed to provide students with knowledge and skills in the areas of literacy foundations, development, assessment, intervention and disorders. Students will engage in both clinical and academic writing in the context of literacy assessment and intervention.

CDIS 410 Neurological Bases of Speech 2 credits

This course provides students with an overview of neuroanatomy and neuroscience. This course will emphasize relationships between neuroscience and speech, language, and hearing. Students will learn through lectures, assigned readings, and class activities and assignments. Clinical case discussions will be emphasized throughout the course.

CDIS 416 Voice and Resonance Disorders 3 credits

Description, etiology, assessment and management of voice and resonance disorders.

CDIS 420 Advanced Audiometrics 2 credits

Audiometrics is a clinical experience (practicum) for undergraduate students interested in speech-language pathology and audiology. Students will observe and perform basic evaluation procedures such as otoscopy, pure-tone audiometry, speech testing, and immittance testing with clinical instruction. Students will also have the chance to learn more about hearing aids and other audiologic testing based on their needs and interests. Students will engage in the clinical process from preparation for an evaluation through reporting out the results and making recommendations based on a person-centered care model and serve as mentors to students in the CDIS 320 course.

CDIS 421 Aural Rehabilitation 3 credits
This course will evaluate habilitative audiology and the range of communication options, including American Sign Language and cued speech, hearing aids, cochlear implants, speech reading and auditory training. This class will look at how these strategies impact someone from birth to the end of life and will evaluate aural rehabilitation options from a person-centered perspective.

CDIS 422 Hearing Across the Lifespan 2 credits
This course will examine how our hearing and perception of speech evolves from birth through older age. Hearing impacts on all aspects of life from language acquisition, learning in school, work, a person's health, and socializing with others will be explored. The impact of hearing technology will be explored as well as limitations that still exist in this technology for speech and music perception. Audism and how systemic and individual biases create barriers to those with changes in hearing will be discussed.

CDIS 431 Observation of Clinical Methods in Speech-Language Pathology 1 credits
This course is intended to be taken concurrently with CDIS 434: Clinical Practicum. According to the American Speech-Language Hearing Association, applicants for certification under the current standards are required to complete at least 25 hours in guided observation. This course will provide students with supervised, guided observation of the diagnostic and therapeutic management of speech and language disorders. Provision of a diverse range of observation experiences across speech-language disorder types and the lifespan will be emphasized.

Prerequisites: Concurrent enrollment in CDIS 434

CDIS 434 Clinical Methods in Speech-Language Pathology 2 credits
This course will provide students with a basic understanding of clinical methods in speech-language pathology therapy and management across disorder categories and the lifespan. Clinical methods including basic intervention approaches as well as a focus on client-clinician interactions, therapeutic-specific skills and case management will be discussed using lectures, assigned readings, and simulations.

Prerequisites: Consent, concurrent enrollment in CDIS 431

CDIS 438 Speech Sound Disorders 3 credits
This course provides an introduction to the nature, assessment and management of speech sound disorders in children. The course covers cross-linguistic issues including differential diagnosis of speech sound disorders versus normal second language acquisition. Course content will be delivered through lecture, textbook readings, clinical applications and practical exercises in assessment and treatment of speech sound disorders.

CDIS 444 Appraisal and Diagnosis 3 credits
This course is designed to introduce students to assessment tools, measures, and procedures for the evaluation, appraisal and diagnosis of speech and language. As speech-language pathologists are increasingly serving culturally and linguistically diverse clients, students will be provided with core information to become prepared to evaluate the speech and language of multilingual and multicultural clients.

CDIS 445 Grand Rounds-Foundation 1 credits
The purpose of this capstone course, designed in a Grand Rounds format, is to provide professional experiences which are similar to those encountered in the real world in the field of neurogenic communication disorders. The intent of this course is to develop professional knowledge, exercise thinking skills, based on application of their academic training and within the context of their own experiences, values and beliefs. This course will provide hands-on opportunities to learn about a variety of neurogenic communication disorders and build up a professional portfolio.

CDIS 446 Grand Rounds-Presentation 2 credits
The purpose of this capstone course, which is designed in a Grand Rounds format, is to provide case study situations which are similar to those encountered in the real world by speech-language pathologists and audiologists. The use of case method instruction involves students; use of critical thinking skills which help build decision making and problem-solving abilities.

CDIS 447 Counseling in Communication Sciences and Disorders 3 credits
This course addresses overall equity, inclusion and diversity issues by specifically exploring principles for counseling persons with communication disorders and their families throughout the lifespan in diverse settings. Students will review major theories of counseling. The course will involve an intersectional approach to culture, race/ethnicity, gender, sexuality, and ability.

CDIS 457W Transdisciplinary Research in Health-Related Fields 3 credits
This course will explore transdisciplinary research design with emphasis related to the areas of allied health and nursing sciences and disciplines. Basic overview of research methodologies commonly utilized in health sciences and approaches to transdisciplinary research will be explored through review of original research. Students will be required to produce and revise scientific writing with specific focus on inter/transdisciplinary studies. Team-based problem centered research questions will be developed and investigated using transdisciplinary methodology with current health-related issues.

CDIS 477 Interprofessional Practices 1 credits
This course will explore interprofessional practices with emphasis related to the areas of allied health and nursing sciences and related disciplines. Students will learn how to interact with other disciplines. Students will be taught techniques to implement outcome-based interprofessional activities through project or community-based experiences.

CDIS 491 Inservice 1-6 credits
Study of a specific disorder or aspects of communication disorders that are not provided in the current curriculum.

CDIS 495 Clinical Practicum: Speech/Language Disorders 2 credits
A practicum course designed to educate students clinical speech-language pathology services to persons with communication disorders. The student will begin to develop skills to conduct diagnostic sessions, design and implement intervention plans and write clinical reports. Pre-req: 3 of the following: 402, 416, 417, 438 (completion of or concurrent enrollment in 444). Overall GPA of 3.0 is highly recommended. Please contact your advisor if you are interested in taking the course without this prerequisite GPA.

Prerequisites: 3 of the following: 402, 417, 438. CDIS 416 is recommended.

Corequisites: Completion of or concurrent enrollment in 444.

Prerequisites: ENG 101, CHEM 324

Computer Information Science

CIS 100 Introduction to Computing and Applications 4 credits

Basic foundations in computer concepts. Topics include: hardware, software, uses of technology in industry, and ethical, and social issues. Lab work covers various systems and applications software including word processing, e-mail, the Internet, spreadsheets, databases, and presentation software. Cannot be counted toward any major or minor offered by Computer Information Science.

CIS 101 Introduction to Information Systems 3 credits

Introduction to the personal computer as a productivity tool for business majors. Using Microsoft Office suite, students learn to be productive with document processing, spreadsheets, electronic presentations, and databases. Cannot be used toward any major or minor in Computer Information Science.

CIS 113 Health Humanities and Health Informatics 4 credits

This course uses health humanities storytelling to prepare students with a sincere concern for human values within the capture, management, and evaluation of health information. Students will explore the synergy between health-related data, healthcare informatics, and outcome measures. Students will gain fundamental information technology skills to understand and critique data, identify relationships between visual arts and written works regarding health, and explore cultural aspects of healthcare experiences and risk adjustment of quality outcome measures. Diverse Cultures: Purple

CIS 115 Big Ideas of Computer Science 4 credits

This course introduces and explores seven “big ideas” of computer science. Students will develop computational thinking skills vital for success across all disciplines, including algorithmic creativity, data abstraction, and modeling and simulation.

CIS 121 Introduction to Programming 4 credits

This course provides conceptual and logical tools for students planning to major in a computing-based major. Programming in a high-level language such as C++, Python, or Java, and the development of skills in abstraction, problem-solving, and algorithmic thinking are emphasized.

Prerequisites: MATH 112 or MATH 113 or MATH 115 or MATH 121

CIS 122 Data Structures 4 credits

This course is a continuation of CIS 121. Students develop a basic knowledge of programming skills and object-oriented concepts, and use fundamental data structures such as lists, stacks, queues, and trees.

Prerequisites: CIS 121. Select One Course: MATH 112, MATH 113, MATH 115, MATH 121, or MATH 130

CIS 123 Applied Programming for Healthcare Professionals 4 credits

This course reviews basic programming concepts such as data types and variables, loops, functions, input/output and visualization. Students become prepared to produce larger, more complex applications. A strong emphasis on problem-solving as students explore how programming concepts are applied to scenarios drawn from healthcare and other domains. Students develop programming skills necessary to implement data structures, exception handling, and object-oriented concepts. Students are also introduced to incremental program development, testing, and debugging.

Prerequisites: CIS 121. Select One Course: MATH 112, MATH 113, MATH 115, MATH 121, or MATH 130

CIS 201 Introduction to Assistive Technology 2 credits

This course introduces students to assistive technology and its applicability to people with various disabilities. Hardware and software demonstrations with an emphasis placed on inexpensive and readily available solutions. Extensive use of the Internet will be employed to keep current with latest technology and to facilitate a continuing dialogue with instructor.

CIS 202W Computers in Society 4 credits

Students prepare written summaries and oral presentations related to the complex social and ethical issues associated with computers. Through thoughtful questions, informative readings, and the analysis of opposing viewpoints, participants gain insight into the complexity of technology-related issues in a world without clearly defined borders.

CIS 223 Algorithms 4 credits

This course builds on CS 122 (Data Structures) with coverage of advanced data structures and associated algorithms, including trees, graphs, hashing, searching, priority queues, and memory management. Formal proof techniques, the analysis of best, worst, and expected cases, and the development of efficient algorithms are emphasized. Use of effect-free programming, first-class functions, and higher-order operations such as map, reduce, and filter are explored.

Prerequisites: MATH 121 and CS 111 or CIS 122 or IT 214

CIS 224 Computer Architecture 4 credits

This course presents historical and current concepts and implementations of computer organization. Topics include instruction set design, digital storage, performance metrics, processor datapath and control, pipelining, memory hierarchy, busses and I/O interfacing, and parallel processors.

Prerequisites: CS 111 or CIS 122 or IT 214

CIS 296 (1-2) Introduction to Selected Topics 1-2 credits

Special topics not covered in other 100- and 200-level courses. May be repeated for each new topic.

CIS 311 Business Application Programming 4 credits

Business application development using a non-object oriented programming language. Emphasis on principles of application programming such as control breaks, read a record/write a line, driver, shared sub-routines, pass by reference, and sub-programming. File concepts emphasized include index-sequential file handling, CRUD, heap files, sorting, transaction, and master files. Programming concepts include input-processing-output definitions, understanding requirements, structure charts, program documentation, and programming standards. Large group project is completed during semester.

Prerequisites: CIS 122

CIS 340 Introduction to Database Systems 4 credits

Introduction to database systems, entity relationship models, relational algebra, database design, data modeling, normalization, and conversion of business rules into relational model. Introduction to basic SQL including subqueries, joins, functions, sequences, triggers, views, and stored procedures.

Prerequisites: CIS 121 or an approved substitute.

CIS 342 Fundamentals of Descriptive Analytics 4 credits

Students are introduced to the main elements of descriptive analytics including creation of visualizations and dashboards. Students will learn the basics of visualization creation, at-a-glance report building, converting to a dashboard, formatting report, clean up and data transformation process and identifying meaningful insights with an emphasis on diversity, equity, inclusion, and belonging. This course prepares students for further use and understanding of descriptive analytics.

Prerequisites: CIS 340. Select one: STAT 154 or ECON 207

CIS 350 Information Security 4 credits

Security concepts and mechanisms; security technologies; authentication mechanisms; mandatory and discretionary controls; cryptography and applications; threats; intrusion detection and prevention; regulations; vulnerability assessment; information assurance; forensics; anonymity and privacy issues; disaster recovery planning, legal issues and ethics.

Prerequisites: EE 107 or CIS 121 or an approved substitute.

CIS 360 Introduction to Networking 4 credits

This course covers basic concepts related to computer networking. Topics addressed will include the OSI model, the Internet model, network management, network protocols and data security. Prerequisite: a 3.0 or higher grade in IT 210 or an approved substitute is required.

Prerequisites: CIS 121. Select 1: MATH 113, MATH 115, MATH 121. Or an approved substitute.

CIS 380 Systems Analysis and Design 4 credits

This course explores both structured as well as object-oriented systems analysis and design. Use of upper and lower CASE tools are employed in the analysis, design and implementation of a team oriented term project.

Prerequisites: CIS 340. Select One Course: CIS 122 or CIS 123

CIS 390 International Technology Experience 12 credits

Study abroad for one semester to participate in a project-based technology/media-oriented program of study. The program of study must be one approved by the student's advisor and the chair of this department.

CIS 393 Career Readiness 1 credits

This course introduces students to the career readiness skills needed to be successful in internships and entry-level jobs. Students will explore career pathways, prepare for a job search, gain exposure to technologies used within industry, and develop effective professional skills so they are prepared to work with diverse teams.

Prerequisites: CIS 121

CIS 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: CIS 380

CIS 414 Advanced Object-Oriented Programming with Design Patterns 4 credits

This course provides the student with a solid understanding of the principles, techniques and design patterns involved in advanced object-oriented programming. Successful students should have a distinct advantage in the marketplace. Variable

Prerequisites: CIS 223, CIS 380

CIS 418 Foundations of Data Science 4 credits

This course provides an introduction to data science, discusses opportunities and challenges associated with data science projects, and develops competencies related to data collection, data cleaning, data analysis, and model evaluation. The course focuses on hands-on exercises using data analytics tools.

Prerequisites: CIS 223, CIS 340

CIS 440 Database Management Systems 4 credits

Extensive coverage of SQL, database programming, large scale data modeling, and database enhancement through reverse engineering. This course also covers theoretical concepts of query processing, and optimization, basic understanding of concurrency control and recovery, and database security and integrity in centralized/distributed environments. Team-oriented projects in a heterogeneous client server environment.

Prerequisites: CIS 340, CIS 380

CIS 442 Database Security, Auditing and Disaster Recovery 4 credits

This course covers science and study of methods of protecting data and designing disaster recovery strategy. Secure database design, data integrity, secure architectures, secure transaction processing, information flow controls, inference controls, and auditing. Security models for relational and object-oriented databases. Variable

Prerequisites: CIS 350, CIS 440

CIS 443 Health Information Technology in Clinical Practice 4 credits

This course introduces students to a variety of existing and emerging technologies used within healthcare environments. Emphasis will be on software used to capture clinical data and generate reports. Students will complete a team-oriented project incorporating business requirements, project management, and design elements for a system implementation, system change, or reporting request.

Prerequisites: CIS 113, CIS 340

CIS 444 Data Analytics 4 credits

The course explores big data in structured and unstructured data sources. Emphasis is placed on big data strategies, techniques and evaluation methods. Various data analytics are covered. Students experiment with big data through big data analytics, data mining, and data warehousing tools. Does the proposal require a modify Program proposal? No

Prerequisites: CIS 440

CIS 450 Information Warfare 4 credits

Covers information warfare principles and technologies. Information warfare concepts; protocols, authentication, and encryption; network attack techniques, methodologies, and tools; network defense; malware; Trojan worms, viruses, and malicious code; electronic crimes and digital evidence.

Prerequisites: CIS 350

CIS 460 Network and Security Protocols 4 credits

Advanced coverage of data communication, networking and security protocols. Topics: data transmission methods, error detection and recovery, flow control, routing, security issues and performance analysis of existing and emerging protocols for secure communication. Fall, Spring

Prerequisites: CIS 360

CIS 462 Network, Security, Administration and Programming 4 credits

Network and server systems administration. Domain administration; file system management; networked printers; user management; and workstation configuration. Network programming assignments/projects in Layered Software Systems, HTTP Server, UDP (TFTP or DNS), CGI program, IPV6, RPC/SCTP. Variable

Prerequisites: CIS 360

CIS 464 Applications of Wireless and Mobile Networks 4 credits

Existing and emerging mobile and wireless data networks with emphasis on digital data communications. Gain an understanding of the unique considerations that must be given to network protocols for wireless and mobile communication and their applications. Variable

Prerequisites: CIS 360

CIS 465 Mobile Device Application Programming 4 credits

This course is designed to give students the skills required to write applications for mobile devices (smartphones and tablets). Topics to be covered include interacting with the UI, using an emulator/simulator, application lifecycle, moving from one screen to another, services, alarms, broadcast receivers, maps API, location-based programs, GPS, persistence, hardware sensors, and web applications.

Prerequisites: CIS 223, CIS 380

CIS 480 Software Quality Assurance and Testing 4 credits

Topics include software quality assurance, software quality metrics, software configuration management, software verification and validation, reviews, inspections, and software process improvement models, functional and structural testing models.

Prerequisites: CIS 223, CIS 380

CIS 482 Human Computer Interaction 4 credits

This course discusses concepts and techniques for design, development and evaluation of user interfaces. Students will learn the principles of interaction design, interaction styles, user-centered design, usability evaluation, input/output devices, design and analysis of controlled experiments and principles of perception and cognition used in building efficient and effective interfaces. Group project work.

Prerequisites: MATH 121. Select one: STAT 154 or PSYC 201. Select one: CS 230 or CIS 380

CIS 483 Web Application Design and Development 4 credits

HTTP Protocol; Web-markup languages; Client-side, Server-side programming; Web services; Web servers; Emerging technologies; Security; Standards & Bodies; Web interface design techniques; User-centered design; Visual development environments and development tools; Interface design effectiveness. Fall, Spring

Prerequisites: CIS 380

CIS 484 Software Engineering 4 credits

An introduction to all important aspects of software engineering. The emphasis is on principles of software engineering including project planning, requirements gathering, size and cost estimation, analysis, design, coding, testing, implementation, and maintenance. Group project work.

Prerequisites: CIS 223, CIS 380

CIS 485 Game Design and Development 4 credits

This course is designed to give students the skills required to design and develop video games. The primary focus of the course is on mobile game development, game design principles and user-centered design methodologies. A play-centric approach to game design and development will be studied, discussed and applied in the production of a game demo.

Prerequisites: CIS 223, CIS 380

CIS 495 Seminar in Information Technology 1 credits

Provides Information Technology majors an opportunity, in a small group setting, to explore a topic not normally covered in the curriculum.

Prerequisites: Consent.

CIS 496 Selected Topics in Information Technology 1-4 credits

Special topics not covered in other courses. May be repeated for credit on each new topic.

Prerequisites: Consent

CIS 497 Internship 1-12 credits

Provides students with opportunity to utilize their training in a real-world business environment working under the guidance and direction of a faculty member. (At most 4 hours toward a major in this department). Fall, Spring, Summer

Prerequisites: Permanent admission to IT and consent.

CIS 498 Information Technology Capstone 4 credits

Develop high quality software application researching and applying fundamental software engineering techniques, several advanced development and test tools, human factors of interface design and a team approach, each student controlling only a part of the system. Fall, Spring

Prerequisites: Senior standing and consent

CIS 499 Individual Study 1-4 credits

Problems on an individual basis.

Computer Science

CS 201W Artificial Intelligence & Science Fiction 4 credits

Course will explore the interplay between science fiction (1950s-present) and the development of artificial intelligence. Turing tests, agents, senses, problem solving, game playing, information retrieval, machine translation robotics, and ethical issues. Variable

CS 230 Introduction to Intelligent Systems **4 credits**

Fundamentals of data mining and knowledge discovery. Methods include decision tree algorithms, association rule generators, neural networks, and web-based mining. Rule-based systems and intelligent agents are introduced. Students learn how to apply data-mining tools to real-world problems.

Prerequisites: CIS 121

CS 271 Introduction to Graphical Programming **3 credits**

An introduction to graphical programming environments. Topics include data and data types, repetition, selection, data acquisition, data dependency, efficiency, modular program construction, array processing, debugging, and visualization.

Prerequisites: EET 113, MATH 121

CS 294 Workshop **1-3 credits**

Workshop topics will be announced. Workshops on different topics may be taken for credit.

Prerequisites: Consent of instructor

CS 295 Computer Science Seminar **1 credits**

Provides students interested in a computer science major or minor an opportunity to explore topics not normally covered in the curriculum. Speakers will include faculty, graduate students, undergraduate students admitted to the Computer Science major, visiting researchers and industry members. Fall, Spring

CS 296 Introduction to Selected Topics **1-2 credits**

Special topics not covered in other 100 or 200-level courses. May be repeated for each new topic. Variable

CS 301 CS Core: Operating Systems **2 credits**

This course introduces the foundational concepts of operating systems including operating systems principles, concurrency, scheduling, dispatch, and memory management and prepares students for advanced topics in operating systems.

Prerequisites: CIS 223, CIS 224 or EE 234, and admission to major.

CS 302 CS Core: Software Engineering & Parallel Computing **2 credits**

This course introduces the foundational concepts of software engineering, and parallel and distributed computing and prepares students for advanced topics in these areas.

Prerequisites: CIS 223, CIS 224, and admission to major.

CS 303 CS Core: Programming Languages **2 credits**

This course introduces the foundational concepts of programming languages, including the principles of language design, language constructs, and comparison of major languages. Topics include formal methods of examining syntax and semantics of languages and lexical analysis of language components and constructs, and propositional and predicate calculi.

Prerequisites: CIS 223, CIS 224, and admission to major.

CS 304 CS Core: Databases & Information Security **2 credits**

This course introduces the foundational concepts of Information Management, Database Systems, Data Modeling, Data Security, Secure Design, Defensive Programming, Security and Cryptography.

Prerequisites: CIS 223, CIS 224, and admission to major.

CS 306 Network Architectures **2 credits**

An introduction to data communications and networks. The field encompasses local area networks, wide area networks, and wireless communication. Topics include digital signals, transmission techniques, error detection and correction, OSI model, TCP/IP model, network topologies, network protocols, and communications hardware.

Prerequisites: CIS 223 and CIS 224 or EE 234

CS 308 Applied Algorithms **2 credits**

This course covers more advanced algorithmic areas, including tree, graph, and text algorithms, as well as the study of algorithmic strategies (e.g., divide-and-conquer, linear programming, etc.). There is an emphasis on the application of efficient algorithms to solve novel problems, and the development of an “algorithmic mindset” by students. Admission to Major or Permission.

CS 391 Computer Science Project 1 **4 credits**

Students learn and practice the essential elements of computer science through research, classical problem or industry project implementation: scoping, modeling, experimentation, analysis, modern tools, creativity, business plans, and global/societal/environmental impacts. Students learn and develop the elements of professionalism while operating in project teams. Topics include leadership, metacognition, teamwork, written and oral communication, ethics and professional and personal responsibility. Course must be taken concurrently with CS 495.

Prerequisites: CIS 223 and MATH 280

CS 391W Computer Science Project 1 **4 credits**

Students learn and practice the essential elements of computer science through research, classical problem or industry project implementation: scoping, modeling, experimentation, analysis, modern tools, creativity, business plans, and global/societal/environmental impacts. Students learn and develop the elements of professionalism while operating in project teams. Topics include leadership, metacognition, teamwork, written and oral communication, ethics and professional and personal responsibility. Course must be taken concurrently with CS 495.

Prerequisites: CIS 223 and MATH 280

CS 392 Computer Science Project 2 **4 credits**

Students further learn and practice the essential elements of computer science through research, classical problem or industry project implementation: scoping, modeling, experimentation, analysis, modern tools, creativity, business plans, and global/societal/environmental impacts. Students continue to learn and develop the elements of professionalism while operating in project teams. Topics include leadership, metacognition, teamwork, written and oral communication, ethics and professional and personal responsibility. Course must be taken concurrently with CS 495.

Prerequisites: CS 391

CS 392W Computer Science Project 2 **4 credits**

Students further learn and practice the essential elements of computer science through research, classical problem or industry project implementation: scoping, modeling, experimentation, analysis, modern tools, creativity, business plans, and global/societal/environmental impacts. Students continue to learn and develop the elements of professionalism while operating in project teams. Topics include leadership, metacognition, teamwork, written and oral communication, ethics and professional and personal responsibility. Course must be taken concurrently with CS 495.

Prerequisites: CS 391W

CS 401 Topics in Operating Systems 2 credits

Study of theory and/or implementation topics related to operating systems such as security and protection, virtual machines, device management, file systems, real time and embedded systems, fault tolerance and system performance evaluation. Prerequisite: Admission to Major or Permission

CS 403 Topics in Programming Languages 2 credits

Study of theory and/or implementation topics related to programming languages such as syntax analysis, semantic analysis, code generation, runtime systems, static analysis, advanced programming constructs, concurrency and parallelism, type systems, formal semantics, language pragmatics, and logic programming. Prerequisite: Admission to Major or Permission

CS 406 Topics in Networking & Communication 2 credits

Study of theory and/or implementation topics related to networking and computation such as mobility and social networking and expansion of topics covered in CS 306. Prerequisite: Admission to Major or Permission

CS 410 Topics in Algorithms & Computability 2 credits

Study of theory and/or implementation topics related to algorithms and computing such as advanced computational complexity, automata theory and computability, and advanced data structures algorithms and analysis. This includes the theoretical underpinnings of modern computer science, focusing on three main models of computation: DFA, PDA and Turing Machines. Students determine model capabilities and limitations: what is and is not computable by each of them.

Prerequisites: Admission to major or permission.

CS 415 Topics in Parallel & Distributed Computing 2 credits

Study of theory and/or implementation topics related to parallel and distributed computing such as parallel algorithms, architecture, and performance, distributed systems, cloud computing, and formal models and semantics. These have been called techniques for High Performance Computing. Topics also include application areas and basic concepts of parallel computing, hardware design of modern HPC platforms and parallel programming models, methods of measuring and characterizing serial and parallel performance.

Prerequisites: Admission to major or permission.

CS 420 Topics in Architecture & Organization 2 credits

Study of theory and/or implementation topics related to computer architecture and organization such as functional organization, multiprocessing and alternative architectures, and performance enhancements. This includes topics in computer architecture including a major emphasis on measuring and improving computer performance. Topics include advances in pipelining and analysis and optimization of storage systems and networks, multiprocessor challenges and trends.

Prerequisites: Admission to major or permission.

CS 435 Topics in Intelligent Systems 2 credits

Study of theory and/or implementation topics related to intelligent systems such as Basic Search Strategies, Basic Knowledge Representation and Reasoning, Basic Machine Learning, Advanced Search, Advanced Representation and Reasoning, Reasoning Under Uncertainty, Agents, Natural Language Processing, Advanced Machine Learning, Robotics, and Perception and Computer Vision. Prerequisite: Admission to Major or Permission

CS 440 Topics in Information Management 2 credits

Study of theory and/or implementation topics related to information management such as indexing, relational databases, query languages, transaction processing, distributed databases, physical database design, data mining, information storage and retrieval and multimedia systems. Prerequisite: Admission to Major or Permission

CS 445 Topics in Information Assurance and Security 2 credits

Study of theory and/or implementation topics related to information assurance and security, such as defensive programming, threats and attacks, network security, cryptography, web security, platform security, security policy and governance, digital forensics, and secure software engineering. Prerequisite: Admission to Major or Permission

CS 450 Topics in Computational Science 2 credits

Study of theory and/or implementation topics related to computational science such as modeling and simulation, processing, interactive visualization, data, information and knowledge, and numerical analysis. Prerequisite: Admission to Major or Permission

CS 465 Topics in Graphics & Visualization 2 credits

Study of theory and/or implementation topics related to graphics and visualization such as basic and advanced rendering, geometric modeling, computer animation and visualization. Topics include game programming with concentration on 3D graphics including modeling, rendering, and animation for computer games and graphic simulations. Programs are created using a current graphics and game development environment.

Prerequisites: Admission to major or permission.

CS 470 Topics in Human Computer Interaction 2 credits

Study of theory and/or implementation topics related to human computer interaction such as designing interaction, programming interactive systems, user-centered design and testing, new interactive technologies, collaboration & communication, statistical methods for HCI, human factors and security, design-oriented HCI, and mixed, augmented and virtual reality. This course builds on the use of modern compilers. Related topics covered include lexical scanning, parsing, type checking, code generation and translation, optimization, and compile-time and run-time support for modern programming languages.

Prerequisites: Admission to major or permission.

CS 480 Topics in Software Engineering 2 credits

Study of theory and/or implementation topics related to software engineering such as software processes, project management, requirements engineering, software design, construction, verification and validation, reliability, and formal methods. These relate to advanced programming for general-purpose software development. Topics include tools and processes appropriate for employing object-oriented designs and programming within a significant software development environment and advanced data structures and algorithms, graphical user interfaces, and software development processes.

Prerequisites: Admission to major or permission.

CS 485 Topics in Platform-Based Development 2 credits

Study of topics theory and/or implementation related to the fundamental differences that Platform-Based Development has over traditional software development addressing topics such as Web Platforms, Mobile Platforms, Industrial Platforms, and Game Platforms. Prerequisite: Admission to Major or Permission

CS 490W Cognitive Science Senior Capstone **4 credits**
Students gain experience working with a team to solve a substantial problem in the field of computer science using concepts that span several topic areas in computer science related to cognitive science. Class time focuses primarily on project design and implementation. Senior standing in the Cognitive Science major with a Computer Science Focus.

Prerequisites: Senior standing and successful completion of all core requirements.

CS 491 (4.00) Computer Science Capstone 1 **4 credits**
The first in a two-semester sequence of capstone design. Students build on the experience gained in CS 391W/392W to bring their research or project implementation and leadership to that expected of contributing computer scientists in industry or research. Course must be taken concurrently with CS 495.

Prerequisites: CS 301, CS 302, CS 303, CS 304, CS 392

CS 491W Computer Science Capstone 1 **4 credits**
The first in a two-semester sequence of capstone design. Students build on the experience gained in CS 391W/392W to bring their research or project implementation and leadership to that expected of contributing computer scientists in industry or research. Course must be taken concurrently with CS 495.

Prerequisites: CS 301, CS 302, CS 303, CS 304, CS 392W

CS 492 Computer Science Capstone 2 **4 credits**
The second in a two-semester sequence of capstone design and the fourth project class overall. Students build on the experience gained in CS 391W/392W to bring their research or project implementation and leadership to that expected of contributing computer scientists in industry or research. Expectations include public presentation of project work, patent applications, and/or plan for commercialization of project. Course must be taken concurrently with CS 495.

Prerequisites: CS 491 and (CS 306, CS 401, CS 403, CS 406, CS 410, CS 420, CS 435, CS 440, CS 445, CS 450, CS 465, CS 470, CS 480, or CS 485)

CS 492W Computer Science Capstone 2 **4 credits**
The second in a two-semester sequence of capstone design and the fourth project class overall. Students build on the experience gained in CS 391W/392W to bring their research or project implementation and leadership to that expected of contributing computer scientists in industry or research. Expectations include public presentation of project work, patent applications, and/or plan for commercialization of project. Course must be taken concurrently with CS 495.

Prerequisites: CS 491W and (CS 306, CS 401, CS 403, CS 406, CS 410, CS 420, CS 435, CS 440, CS 445, CS 450, CS 465, CS 470, CS 480, or CS 485)

CS 494 (1-3) Workshop **1-3 credits**
Workshop topics will be announced. Workshops on different topics may be taken for credit.

Prerequisites: Consent of Instructor

CS 495 Computer Science Seminar **1 credits**
Students learn about computer science practice through seminars with faculty, graduate students, undergraduate students admitted to the CS major, visiting researchers, and industry members. CS students are assisted in their development as learners and professional citizens through workshops. This course is repeated by upper-division Computer Science students every semester.

Prerequisites: Admission to major.

CS 496 (1-4) Selected Topics in Computer Science **1-4 credits**
Special topics not covered in other courses. May be repeated for credit on each new topic. Variable

Prerequisites: Consent

CS 497 (1-6) Internship **1-6 credits**
This course is designed to provide students with an opportunity to utilize their training in a real-world environment. Participants work under the guidance and direction of a full-time staff member. (At most 4 hours towards the CS major.)

Prerequisites: Permanent admission to the CS major, CS 300, consent.

CS 498W Senior Thesis **4 credits**
Advanced study and research required. Topic of the senior thesis determined jointly by the student and the faculty advisor. Fall, Spring

Prerequisites: Senior standing and consent

CS 499 (1-4) Individual Study **1-4 credits**
Problems in the field of computer science are studied on an individual basis under the guidance of a faculty mentor. Fall, Spring

Prerequisites: Consent

Construction Management

CM 108 Construction Work Experience **1 credits**
The Construction Experience course is one step toward building a future in the management of projects for the built environment. This course inspires students to explore opportunities within the diverse construction industry under the guidance and approval of the course instructor.

CM 111 Introduction to Construction Management **1 credits**
Overview of academic preparation and career opportunities in the field of Construction Management. Skills needed for estimating, scheduling, project management and field supervision will be previewed with an emphasis on future trends in the industry.

CM 120 Construction Graphics **3 credits**
Emphasis on plan reading, basic sketching and drawing techniques, graphic vocabulary, detail hierarchies, scale, content, notes and specifications, reference conventions, computer applications.

CM 130 Construction Documents **2 credits**
Basic understanding of the plans and specifications for construction projects. Emphasis on interpretation of bidding and contractual documents, conditions of the contract, plans/working drawings; applications of existing and new technology preparing students for the future.

CM 210 Construction Materials and Methods I **3 credits**
Understand how construction affects professional industry and society, present state of the profession and its future. Learn about the various materials used in construction--the composition, properties, standard designations, sizes, gradations, and testing techniques. Understand changes in technology of building construction materials.

Prerequisites: CM 111, CM 120, CM 130, CIS 101

CM 220 Construction Materials and Methods II 3 credits

Fundamentals of building construction and their applications in construction systems and utilities. Application of the principles of building science to construction sites; relationship between technology and innovations in methods, sustainable building practices and “green” building requirements.

Prerequisites: CM 210

CM 222 Introduction to Statics and Mechanics of Materials 3 credits

Course introduces the design theory and applied principles of force equilibrium, stress and strain, shear, bending moments, force diagrams, deformations of beams, and stress/strain analysis.

Prerequisites: PHYS 101, MATH 113 or MATH 115 or MATH 121

CM 271 Civil Engineering Measurements 2 credits

Basic civil engineering measurements as relates to construction layout, including distances, angles, bearings, elevations, mapping, and positioning.

Prerequisites: MATH 113 or MATH 115 or MATH 121

CM 297 Construction Professional Practice 1 credits

Principles of professional conduct, ethical codes and best practices are applied to the development of a portfolio and presentation. Students will sit for interviews, set career goals and begin building a professional network.

Prerequisites: CM 108, CM 210

CM 300 Construction Safety 3 credits

This course examines the principles and practices of construction safety, health and loss control. The emphasis is on creating a construction project safety plan, including hazard recognition, control procedures and management systems for safety.

Prerequisites: CM 210

CM 310 Estimating I 3 credits

This course covers types of estimates and their uses, the basics of quantity take-off, labor and equipment productivity and basic computer applications.

Prerequisites: MATH 113 or MATH 115 or MATH 121

CM 330 Planning and Scheduling 3 credits

The course focuses on understanding project planning, scheduling and control models emphasizing the critical path method. It will introduce techniques used in the industry by utilizing commercial software to create a construction project schedule. The class highlights the importance of analyzing project schedules and schedule alternatives.

CM 220**CM 340 Construction Project Management 3 credits**

This course examines the project management framework, including key terminology, project management context, and project management processes. Topics include project management knowledge areas, life cycles, and organizational designs. Different project delivery methods will be discussed and the roles of project stakeholders will be identified and analyzed.

Prerequisites: CM 220, CM 222, CM 297

CM 350 Mechanical and Electrical Systems for Construction 3 credits

Design concepts of plumbing, HVAC, and electrical and control systems are analyzed for attributes that affect the design and construction processes and the performance of completed structures.

Prerequisites: CM 220

CM 380 (3.00) Construction Equipment Management 3 credits

This course provides understanding of the different building and civil construction equipment's functions; analysis of equipment costs, production, methods of equipment selection and safety requirements including heavy equipment. Reading and understanding highway construction plans.

Prerequisites: CM 220, CM 300

CM 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: The Co-Operative Experience is a zero-credit, full-time practical training experience. Please contact an advisor in the Construction Management program for details.

CM 410 Estimating II 3 credits

This course covers types of estimates and their uses, pricing and price databases, labor and equipment productivity, proposal presentations, computer applications in estimating and research in sustainable construction.

Prerequisites: CM 310, CM 330

CM 450 Construction Capstone Project 3 credits

The course will involve students in a Capstone Project where students integrate the coursework concepts of the core program through research, application and presentation.

Prerequisites: CM 340

CM 492 Construction Management Seminar 3 credits

A seminar course that involves a critical evaluation of an area in the construction management discipline and/or industry. Topics vary from year to year. Students are usually required to make a presentation to the class.

Prerequisites: Senior Standing or instructor permission

CM 497 Internship 1-12 credits

Students will complete their Internship experiences

Prerequisites: CM 300, CM 310, CM 330

CM 499 (1-4) Individual Study 1-4 credits

An in-depth study on a topic of particular interest to the student. Project must be approved by project supervisor and department chairperson.

Corrections

CORR 417 Program Administration 3 credits

Implications of Sociological Knowledge for the administration of Human Services programs. Theoretical and practical aspects of administration with the Social Service systems.

Prerequisites: SOC 101

CORR 497 Capstone Seminar **2 credits**
Capstone is an evaluative course which allows students to document their learning and provide an assessment of their personal learning and the effectiveness of the Corrections Program. To be taken concurrently with CORR 496.

Prerequisites: Completion of all other required CORR courses.

Counseling and Student Personnel

CSP 110 Decision Making for Career and Life **3 credits**
The purpose of this course is to help students develop critical thinking, problem solving and decision-making skills necessary to manage the challenges they face now (choice of major) and in the future (career choice and balancing work and life roles). Meets General Education requirements for critical thinking.

CSP 115 Processes & Skills for Facilitating Effective Change **3 credits**
An introduction to basic processes and skills related to facilitating effective change. Selected topics (chemical use and abuse, facilitating diversity, working in groups) related to personal, social and interpersonal issues effecting families, and professionals will be presented.

CSP 470 Group Procedures **3 credits**
Strategies for establishing a group. A review of concepts related to group membership, group member roles and group techniques, therapeutic factors and leadership roles. An experiential component is included in this course.

CSP 471 Interpersonal Helping Skills **3 credits**
Provides the developing helping professional with an introduction to basic helping skills: attending, listening, responding to content and affect, probing, and providing feedback. The course is experiential in nature and includes small group interaction, videotaping, and role-playing simulations.

CSP 473 Counseling the Chemically Dependent Family **3 credits**
Understanding the impact of chemical dependency on the family. Family counseling skills and relapse prevention strategies will also be included.

CSP 491 Inservice **1-4 credits**
CSP 499 Individual study **1-4 credits**

Creative Writing

CW 242W Introduction to Creative Writing **4 credits**
An introduction to writing poetry and short prose. This course does not assume previous creative writing experience on the part of the student.

CW 250 Video Game Narrative **4 credits**
This course analyzes the history of story-focused games from board games through computer and mobile games.

CW 340 Form and Technique in Prose **4 credits**
Study and explain the relationship between form and content in prose genres. Create own works applying the craft elements studied.

CW 341 Form and Technique in Poetry **4 credits**
Study and explain the relationship between form and content in poetry. Create own works applying the craft elements studied.

CW 342 Beginning Creative Nonfiction Workshop **4 credits**
Writing personal essays and literary journalism with an emphasis on workshop and revision.

CW 343 Beginning Fiction Workshop **4 credits**
Introduction to writing short stories with an emphasis on the workshop.

CW 344 Beginning Poetry Workshop **4 credits**
Introduction to writing poems, with an emphasis on the workshop.

CW 430 (1-4) Independent Reading **1-4 credits**
Extensive reading in an area for which the student has had basic preparation.

CW 442 Advanced Creative Nonfiction Workshop **4 credits**
Advanced workshop in creative nonfiction, including personal essays and literary journalism.

Prerequisites: CW 340

CW 443 Advanced Fiction Workshop **4 credits**
An advanced course in writing short stories.

CW 444 Advanced Poetry Workshop **4 credits**
An advanced course in writing poems.

CW 446 Screenwriting Workshop **4 credits**
Introduction to developing and writing fiction projects for film and television. May be repeated with new content.

CW 447W Advanced Creative Writing **4 credits**
Revise and polish creative work into a professional portfolio with publication and presentation in mind.

CW 448 Contemporary Writers **4 credits**
Analyze contemporary works of poetry and prose with a special focus on craft and the works' cultural and literary significance.

CW 449 Topics in Creative Writing Form and Technique **2-4 credits**
A variable-title course that explores special topics relating to the technical study of one or more creative genres or the achievement of one or more practitioners. May be repeated with different topics, some of which could fulfill either a major author or a workshop requirement.

CW 470 Independent Writing **1-4 credits**
Independent study in writing.

CW 494 Special Topics Workshop **2-4 credits**
Specialized workshop focusing on a specific genre, such as flash fiction, true crime, hybrid writing, or auto-fiction.

CW 498 Internship **1-4 credits**
On-site field experience in creative writing, the nature of which is determined by the specific needs of the student's program option.

CW 499 (1-4) Individual Study **1-4 credits**
Extensive reading and writing in an area for which the student has had basic preparation. May be repeated with change in topic.

Criminal Justice

CJ 101 Introduction to Criminal Justice Systems **3 credits**
Examines the making of criminal law, the evolution of policing, the adjudication of persons accused of criminal law violations, and the punishment of adult offenders. Diverse Cultures: Purple

CJ 200 Foundations and Orientation to Corrections 3 credits

This course requires students to complete 50 hours of volunteering at a community agency to gain experience and learn how the agency and its staff perform their objectives. The course also requires students to practice their writing skills in assignments designed for reflection on personal strengths and interests, career pursuits, and résumé writing. Class discussions emphasize professional development, ethics, and various issues relevant to criminal justice and corrections. Corrections majors should take this course as early as possible.

CJ 201 Careers in Criminal Justice 3 credits

This course will introduce students to the numerous agencies and organizations that make up the criminal justice system and its components. A primary goal for this course is to help students prepare for, as well as succeed in, a criminal justice system career.

CJ 202 Community Relations and Peacekeeping 3 credits

The foundational tenets of peacekeeping are based on building relations between peace officers and the communities they serve. The student will be introduced to the value of positive interactions between peace officers and the populations they serve, as well as how negative interactions can impact public perception, funding, and trust. Students will also learn ways to incorporate problem-solving strategies and critical analysis on both micro and macro levels to address community and peacekeeping concerns.

CJ 225 History of Prisons and Punishment 3 credits

Addresses the justifications and the historical development of punishment, the legal and policy issues concerning capital punishment, and the use of incarceration as a response to crime.

CJ 231 Criminal Law & Procedures 4 credits

The history, development, and application of criminal laws and criminal procedures in the criminal justice system.

CJ 232 Minnesota Laws, Rules, and Statutes 3 credits

An extensive study of the rules, statutes, criminal laws, and traffic laws that directly relate to the role of a peace officer in the State of Minnesota.

CJ 233 Criminal Investigation 3 credits

The history, legal aspects of investigation, the evolution of investigations and forensics, procedures of crime investigations, procurement and preservation of evidence and interviewing.

CJ 242 Peace Officers and Human Behavior 3 credits

This course will introduce students to theoretical concepts in sociology, social psychology, psychology, and criminology pertaining to human behavior. Students will gain an understanding of how individual and societal factors influence the behaviors of the people they serve, as well as how those same factors influence the peace officer personality. Students will also be introduced to many of the mental disorders they will encounter in the field so that they may more easily identify those in crisis when in the field and determine the most appropriate course of action to assist them.

CJ 255 Juvenile Delinquency & Justice 3 credits

A critical consideration of definitions of juvenile delinquency, emphasis on micro and macro level of struggle in which delinquent behavior takes place, critique of current theories on delinquency, and the juvenile justice response to delinquency from a criminal justice lens. Diverse Cultures: Purple

CJ 261 Policing Patrol Practicals 3 credits

Policing patrol practicals covers the types and methods of patrol and factors involved in one's perception and observation of others. This course includes knowledge and skills to preserve the peace of the community they are going to serve. This course is part of the Policing Skills Certificate and requires approval for registration.

CJ 262 Policing Firearms Practicals 3 credits

Firearms covers the use of deadly force, firearms safety, care and cleaning of service weapons, and firearms shooting principles. The course focuses on students' decision-making ability and firearms shooting ability. This course is part of the Policing Skills Certificate and permission is required to register for this course.

CJ 263 Policing Crime Scene Processing 2 credits

Crime scene processing and investigation covers a study of responsibilities and duties of officers conducting a preliminary investigation of a crime scene including recognition, preservation, recovery of physical evidence, crime scene photography, sketching and recovery of latent fingerprints. This course also covers proper procedure for interviewing and interrogation of victims, witnesses, and suspects. Permission is required to register; this course is part of the Policing Skills Certificate.

CJ 264 Policing Traffic Enforcement Practicals 2 credits

Traffic enforcement covers instruction and practical experience in radar operation, DUI detection, accident investigation, evasive driving, and current trends of violations and offenses. This course requires permission to register and is part of the Policing Skills Certificate.

CJ 265 Policing Defensive Tactics 2 credits

Defensive tactics includes basic techniques on how to best defend against certain common types of attack and the reasonable force necessary to overcome the resistance being offered. This course aids in reducing the likelihood of injury to all parties, minimizing the use of excessive force, and creating a positive self-image with physical and mental conditioning. Permission is required to register for this course and this course is part of the Policing Skills Certificate.

CJ 291 Exploratory Studies 4 credits

May be used to explore areas of interest not covered in regular courses. A maximum of three hours applicable toward a major or minor in the department with consent of an advisor.

CJ 309 Drugs and Society 3 credits

A sociological perspective to examine the history of drug use and abuse in the United States. Multicultural issues in drug abuse, international drug distribution networks, prevention efforts, and legal issues will be discussed.

CJ 310 Research Methods in Criminal Justice & Criminology 3 credits

Research methodologies as they apply to correctional evidence-based practices are covered, as are strengths and limitations of various research practices, especially with respect to central correctional concepts such as risk, recidivism, and program evaluation. Students will gain experience with data sources, data collection, and basic interpretation of data analysis.

CJ 321 Victims/Survivors: Criminal Justice Response 3 credits

Overview of the characteristics of victims, victim-offender relationships, societal victimization, victim's rights and services, and restorative justice. The focus will be on developing effective criminal justice responses to the victims/survivors and the perpetrators.

CJ 322 Peacekeeping in a Diverse Society I 3 credits

This course is designed to provide peace officer students with the foundational information, tools, and skills needed to improve interpersonal communications with coworkers and the public from all ethnic and cultural groups. This course also provides some historical information so students can contextualize and better understand why particular groups may distrust and resist peace officers and the criminal justice system as a whole.

CJ 323 Cultural Competency in Corrections 3 credits

Assist the students in starting a healthy conversation on cultural competencies for correctional professionals, and develop resources, skills, and strategies needed to address racism and inequity. The idea is to take a journey in building a more inclusive, connected, and effective correctional organization. Students will discover a framework to help discuss issues related to cultural competency: learn about methods, practices, and values that define cultural competency and culturally based work in various fields and organizations; understand the complexities within ethnic communities; and gain insights into the nature of institutionalized racism.

CJ 324 Women in the Criminal Justice System 3 credits

This course focuses on the experiences of women in the criminal justice system--as victims, offenders, and professionals. Women's involvement in this system (whether they were a defendant, an attorney, an inmate, a correctional officer or a crime victim) has often been overlooked or devalued. The goal of this course is to bring the special needs and contributions of women in the criminal justice system into sharper focus.

CJ 331 Peace Officer Stress and Wellness 3 credits

The mental and physical wellbeing of peace officers will be focused on and students will be required to assess their vulnerabilities to intrapersonal and interpersonal stressors. Students will develop tactics and strategies for managing their mental and physical wellbeing, while understanding how those strategies may have to change over time. Must be a major or minor in Corrections, Criminal Justice, Law Enforcement, or Peace Officer Program.

CJ 332W Peace Officer Communication Techniques 3 credits

The course will provide the student with a solid foundation in effective peace officer communications and prepare the student analytically for a career as a peace officer. This course also has a writing intensive requirement that involves drafting, editing, and reviewing a variety of written assignments. Must be a major or minor in Corrections, Criminal Justice, and/or Peace Officer (Law Enforcement) Programs.

CJ 333 Advanced Criminal Investigation 3 credits

A more in-depth survey of methods and techniques for the investigation of crimes. This course builds off the foundation of LAWE233: Criminal Investigation.

CJ 334 Physical Wellness for Police 3 credits

This course is designed to provide specialized training to students pursuing a career in policing, with a focus on maintaining good health and well-being. Police are required to pass skills training (police academy). This course offers specific education tailored to prepare them for the academy and equip them with the necessary skills to maintain their physical health.

CJ 350 JOLT: Joint Opportunities to Learn and Thrive 3 credits

JOLT is a collaborative effort between the University and several probation offices. Students will mentor delinquents in the community and be mentored by local probation officers. This is a year-long commitment.

CJ 355 JOLT: Joint Opportunity to Learn and Thrive, Part II 3 credits

JOLT-II is a second semester continuation of CORR 350. Can only enroll after completing CORR 350.

CJ 371 Criminal Justice Community Experiences 1 credits

Students will engage in community experiences, public service interactions, experiences with a variety of diverse groups, and/or interactive panels that will provide for opportunities to reflect, observe, conceptualize, and grow as a future criminal justice professional.

CJ 393 Issues in Criminal Justice 1-3 credits

An examination of issues facing criminal justice today in constantly changing legal, social and cultural environments. Topics will vary and may be repeated for credit.

CJ 401 Advanced Crime Theory & Prevention 3 credits

Advanced Crime Theory & Prevention provides an overview of the nature and causes of crime and victimization. Using a multidisciplinary approach, the course surveys theories of criminal behavior at the macro- & micro-level. Students will learn how to evaluate criminological theories. The course also covers the link between theory and crime prevention efforts, focusing primarily on how crime prevention efforts employed by legislatures, police, courts, and corrections agencies in the United States are derived from theory.

CJ 402 Criminal Justice Ethics and Leadership 3 credits

The course will examine ethics and leadership theory, interpretation, and application. Concepts such as vision, ownership, integrity, accountability, attitude, teamwork capability, monitoring, evaluation, and decision making will be interpreted through case studies of ethics and leadership in criminal justice.

CJ 421W Community Corrections 3 credits

Addresses theoretical roots, historical developments, and current practices of probation, parole, and other community corrections programs. Special attention is given to innovative, future approaches to community corrections. Writing intensive

CJ 422 Community Reentry 3 credits

This course focuses on mass incarceration (including the policies that produced and maintains it) in addition to the concept of recidivism (how it is defined/measured, and how it represents, for better or worse, the antithesis of the intended goals of community reentry after release from prison). In that framework, the course explores various obstacles and facilitators of successful community reentry. Students are expected to gain an understanding of crime policy, its limitations, as well as concrete ways to facilitate community reentry despite factors that impede it.

CJ 423 Correctional Counseling 3 credits

Principles and methods of individual and group counseling with juvenile and adult offenders; development of interpersonal helping skills, negotiation, and mediation skills.

CJ 429 Evidence Based Practices in Corrections 1-6 credits

This class will be taught in modules where students will gain learn how to determine if practices in Corrections are evidence based, the types of programming in Corrections that are supported by research, and skills and knowledge necessary to implement these practices.

CJ 430W Peace Officer Technical Writing 3 credits

This course will cover the basic techniques of writing reports, memoranda, forms, and other documents used in the peace officer profession. This is a writing-intensive course that will not only fulfill MN POST Report Writing requirements, but will also require students to compose numerous documents and respond to writing feedback throughout the semester.

CJ 432 Peacekeeping in a Diverse Society II 3 credits

This course is designed to provide peace officer students with a more thorough understanding of a variety of ethnicities, cultures, and groups in Minnesota and elsewhere throughout the country.

CJ 433 Peace Officer Senior Seminar 1 credits

Senior Seminar is a capstone course that is specifically designed for Peace Officer Program students to be eligible to become licensed peace officers. This course will assist the student in several areas to include preparation for the MN POST test, interviewing skills, critical thinking and decision-making skills, scenario-based learning, and job application skills.

CJ 441 Federal Agencies and Homeland Security 3 credits

This course explores the history, development and current role of federal agencies that have enforcement authority in the United States. This course also explores the history, implementation, and role of Homeland Security, along with the integration of purpose, action, and enforcement between Homeland Security, federal enforcement agencies, and local peace officer agencies with a lens of legal, policy, and cooperation strategies at the federal, state, and local levels.

CJ 442 Study Tour: Comparative Studies in Terrorism and Political Violence 3 credits

This course complements the learning experience of traveling on a faculty led study abroad trip. The focus will be a comparison of terrorism, political violence, and counter-terrorism activities in the United States to the same activities in the visited countries based on readings, research, observation, and participation. Instructor permission is required to register for this course.

CJ 443 Study Tour: Comparative International Justice Systems 3 credits

This course complements the learning experience of traveling on a faculty led study abroad trip. The focus will be on a comparison of international justice systems in a variety of countries based on readings, research, observation, and participation. Instructor permission is required to register for this course.

CJ 445 Criminal Justice Response to Terrorism and Political Violence 3 credits

This course is an introductory course for upper-level criminal justice undergraduate students about terrorism and political violence both internationally and domestically. The course will focus on defining terrorism, understanding the impact of terrorism, and thinking about actions that criminal justice agencies can take to respond to terrorism.

CJ 449 Comparative Criminal Justice Systems 3 credits

A comparison of criminal justice philosophies, structures, and procedures found in various countries around the world.

CJ 451 Administrative Law 4 credits

Legal procedures by which state and federal administrative agencies exercise legislative, judicial and executive powers. Emphasis is placed on the constitutional position of administrative agencies, the rule making process, the power of agencies to decide rights and obligations concerning individual cases, and judicial control of administrative action.

CJ 453 Constitutional Law 4 credits

Review of selected U.S. Supreme Court decisions relating to the powers of the President, Congress and the Judiciary, as well as the division of power between the states and the federal government. Focus is on case briefing, underlying rationales, and the development of individual analytical abilities.

CJ 454 Civil Liberties 4 credits

Review of selected United States Supreme Court decisions interpreting important freedoms contained in the Bill of Rights and the 14th Amendment. Focus is on the rationale which underlies decisions and its impact on American political social processes. Provides an opportunity to exercise and develop individual analytical abilities through analysis of Court's reasoning. Same as POL 454.

CJ 456 Correctional Law 3 credits

Examines the rights of inmates, probationers, and parolees.

CJ 475 Judicial Process 4 credits

An examination of the structure, jurisdiction and processes of federal and state courts. Emphasis is placed on selection of judges and justices and on the dynamics of judicial decision-making. Same as POL 475.

CJ 485 Topics in Criminal Justice 1-3 credits

This course explores topics in criminal justice beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

CJ 496 Field Practicum & Capstone Experience in Corrections 12 credits

Field Practicum & Capstone Experience is a hybrid experiential learning course where students complete a 400-hour internship experience within an agency that manages justice-involved persons while participating in other professional development & experiential learning opportunities that vary from semester to semester. In addition to their internship experiences, students can expect guest speakers, facility tours, training, and/or other educational experiences to be offered in-person, or via teleconference. Required for the Corrections major. Formal application required. Contact Director of Criminal Justice Field Studies to apply.

CJ 498 Internship 1-6 credits

Field placement with a criminal justice agency or related organization. Provides a learning experience in which the student can integrate and apply knowledge and theory derived from curriculum. Can only be taken P/N, must have permission to register.

CJ 499 Independent Study 1-3 credits

Advanced study and research on topics not currently available in existing courses. May be repeated with a change of topic. Requires advisor and instructor approval of topic.

Dakota Language

DAK 101 Elementary Dakota I 4 credits

An introduction, within cultural context, to the basic skills of listening, speaking, reading and writing in the Dakota language.

DAK 102 Elementary Dakota II 4 credits

An introduction, within a cultural context, to the basic skills of listening, speaking, reading and writing in the Dakota language.

DAK 201 Intermediate Dakota I 4 credits

Grammar review, oral practice, written composition, and development of reading and listening skills within a cultural context.

DAK 202 Intermediate Dakota II 4 credits

Grammar review, oral practice, written composition, and development of reading and listening skills within a cultural context.

Dance

DANC 120 Introduction to Dance 3 credits

A survey of dance in all its vibrant forms intended to develop student understanding and appreciation for the significant role dance plays in world cultures.

DANC 120W Introduction to Dance 3 credits

A survey of dance in all its vibrant forms intended to develop student understanding and appreciation for the significant role dance plays in world cultures.

Prerequisites: Consent

DANC 123 Jazz Dance I 2 credits

Fundamentals of jazz technique, including knowledge and application of terminology. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 125 Afro-Caribbean Dance Forms 2 credits

Fundamentals of African-based dance forms explored through West African and Caribbean roots. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 126 Ballet I 2 credits

Fundamentals of ballet technique, including knowledge and application of terminology. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 127 Tap Dance I 2 credits

Fundamentals of tap dance technique utilized in musical theatre. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 128 Contemporary Dance I 2 credits

Fundamentals of modern dance technique, including an improvisatory component. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 129 Dance Activities 1-2 credits

Performing in a mainstage dance production. May be repeated.

Prerequisites: Consent

DANC 223 Jazz Dance II 2 credits

Expanding knowledge and skill of jazz dance technique with more direct application to musical theatre and concert dance, as well as focus on emerging performance skills. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 225 Worlds of Dance 3 credits

Cross-cultural survey of dance from around the world with emphasis on historical, social, and cultural dimensions. Includes western concert dance as one among many other forms. Consent of instructor is required. Diverse Cultures: Purple

Prerequisites: DANC 120 or DANC120W

DANC 226 Ballet II 2 credits

Expanding knowledge and skill of ballet technique, with increasing development of center floor and across-the-floor variations, as well as emerging performance skills. May be repeated. Consent of instructor is required.

DANC 227 Tap Dance II 2 credits

Expanding knowledge and skill of tap technique, in musical theatre, as well as focus on emerging performance skills. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 228 Contemporary Dance II 2 credits

Expanding knowledge and skill of modern dance technique, including floor work, elevations, inversions, and emerging performance skills. May be repeated.

DANC 320 Dance Somatics 2 credits

Study and practice of specific techniques to improve dancers' performance, health, and teaching. Consent of instructor is required.

DANC 321 Dance Composition I 2 credits

The study of dance making, dance accompaniment, and dance criticism through the creation of dance works. Consent of instructor is required.

Prerequisites: DANC 228, DANC 322. Consent

DANC 322 Dance Improvisation 2 credits

Exploration of a variety of improvisational techniques for beginning Dance Majors and Minors. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 323 Jazz Dance III 2 credits

Increasing difficulty of jazz dance technique through complexity of combinations, multiple turns, and more developed performance skills as applied to musical theatre or concert dance. May be repeated. Consent of instructor is required.

DANC 324 Methods and Materials for Teaching Dance 3 credits

This course is first in a two-part series of courses required for the K-12 Dance Education license. It examines the theory and practice of dance education and applies this knowledge to simulated teaching and to selected clinical settings. Consent of instructor is required. Fall

DANC 326 Ballet III 2 credits

Increasing difficulty of ballet technique with more complex combinations, multiple turns, pointe work, and greater emphasis on performance skills. May be repeated. Consent of instructor is required.

DANC 327 Tap Dance III 2 credits

Increasing complexity of tap technique for musical theatre with greater emphasis on performance skills. May be repeated. Instructor consent is required.

Prerequisites: Consent

DANC 328 Contemporary Dance III 2 credits

Increasing complexity of modern dance technique, including floor work, partnering, elevation, inversions, and performance skills. May be repeated. Instructor consent is required.

DANC 329 Dance Practicum 1 credits

Individualized teaching, performance, or choreographic experiences occurring on, or off-campus. May be repeated.

Prerequisites: Consent.

DANC 332 Dance Partnering 1 credits

Expanding knowledge and skill in dance partnering, with the emphasis on styles used in performance of concert dance. May be repeated. Instructor consent is required.

DANC 333 Dance Partnering for Theatre **1 credits**
Expanding knowledge and skill in dance partnering, with the emphasis on styles used in performance of theatre and musical theatre. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 421 Dance Composition II **2 credits**
Continuation of the principles and techniques of choreography with an emphasis on group forms.

Prerequisites: DANC 321

DANC 424 Dance Pedagogy **3 credits**
This course is the second in a two-part series of courses required for the K-12 Dance Education license. The focus of the course is on lesson planning, assessment, and teaching in a variety of K-12 settings. Spring

Prerequisites: DANC 324

DANC 427 Topics in Dance **3 credits**
Rotation of a variety of topics in dance. May be repeated. Consent of instructor is required.

Prerequisites: Consent

DANC 428 Dance Repertory **1 credits**
Repertory experience in performance of the choreography by a variety of dance artists. May be repeated. Consent of instructor is required.

DANC 429 Senior Dance Project **1 credits**
Capstone experience for all dance majors. Individually paced and directed, this project can be: choreographic, performance, or written.

Prerequisites: DANC 484W

DANC 430 Choreographic Project I **1 credit**
Course will advance individual student's compositional skills through her/his solo and group projects in a self-paced manner. Consent of instructor is required.

DANC 431 Choreographic Project II **1 credit**
Course will further advance individual student's compositional skills through her/his solo and group projects in a self-paced manner.

Prerequisites: DANC 430, consent

DANC 484 Dance History **3 credits**
Historical survey of Western theatrical dance from the 1500's to the present. Also integrates reading and discussion about how class, gender, and race affected the development of concert dance history in the United States and Europe.

Prerequisites: DANC 120, DANC 225, DANC 226, DANC 228, DANC 321

DANC 484W Dance History **3 credits**
Investigation of concert dance history from diverse perspectives. Along with western European contributions, the legacies and traditions associated with the African diaspora, North American indigenous populations, vernacular and folk forms will also be included. Sociopolitical ideologies of race, class, and gender will apply to this historical examination.

Prerequisites: DANC 225

DANC 497 (1-8) Dance Internship **1-8 credits**
This course is designed to provide dance students additional dance experiences through work beyond the campus environment. Fall, Spring

Prerequisites: consent

DANC 499 (1-3) Individual Study **1-3 credits**
This course is designed to provide students with specialized study in dance. Fall, Spring

Prerequisites: consent

Dental Hygiene

DHYG 100 Perspectives in Dental Hygiene **1 credits**
This course will give the student an introduction to Dental Hygiene as a profession and career. Exploration of dental hygiene practice and an overview of the dental hygiene curriculum and conceptual framework will be covered.

DHYG 101 Introduction to Dental Professions **1 credits**
This course will give the student an introduction to the possible careers in the field of dentistry. Exploration of the roles and responsibilities of dental assisting, dental hygiene, advanced dental therapy, and dentistry will be covered.

DHYG 219 Head and Neck Anatomy and Histology **2 credits**
Head and Neck Anatomy is the study of the hard and soft tissues of the head and neck including bones, muscles, nerves, blood supply, glands and how they function. Oral Histology is the study of cells and cell layers which compose basic tissues, oral mucosa, gingival and dentogingival tissues, orofacial structures, enamel, dentin and pulp.

Prerequisites: Admission into the Dental Hygiene Program

DHYG 223 Pharmacology **3 credits**
Pharmacology is the study of drugs used in dentistry or medicine for the treatment, prevention and diagnosis of disease.

Prerequisites: BIOL 220, CHEM 106 or CHEM 111

DHYG 225 Oral Anatomy **2 credits**
This course studies structures of the oral cavity. Topics include tooth annotation, eruption patterns, embryology, morphology, characteristics, function, occlusion and clinical considerations as it relates to the practice of dental hygiene.

DHYG 311 Preclinical Orientation **3 credits**
This course includes an introduction to dental terminology and clinical aspects of dental hygiene treatment including care and use of equipment/instruments, infection control and preparation of patient records.

DHYG 313 Clinical Skills Development **3 credits**
This course integrates the scientific and clinical principles within the practice of dental hygiene. Students apply foundational knowledge in clinical skills on simulation and live patients with an emphasis on principles, procedures, and professionalism for performing comprehensive preventive oral care.

DHYG 321 Radiography I **3 credits**
This course explores radiation theory, safety, and patient management. Emphasis is placed on intraoral and extraoral radiographic procedures and techniques.

DHYG 322 Biomaterials I 2 credits

This is the first course in a series of two courses that studies the fundamental elements, purposes and uses of materials used in dentistry. The student will develop laboratory or clinical competency in functions using dental materials that are legal duties for Minnesota dental hygienists.

DHYG 326 Biomaterials II 2 credits

This course is the second course in a series of two courses that studies the fundamental elements, purposes, and uses of materials used in dentistry. The student will develop laboratory or clinical competency in functions using dental materials that are legal duties for Minnesota dental hygienists.

DHYG 327 Periodontology I 2 credits

This course will include a study of supporting tooth structures, identification, classification, etiology, progression and treatment of periodontal diseases.

DHYG 328 Radiography II 2 credits

This course focuses on interpretation of intraoral and extraoral dental radiographic images. Three-dimensional imaging, extraoral imaging, dental x-ray film, film processing and quality assurance are also explored.

DHYG 329 Oral Embryology and Pathology 3 credits

This course encompasses prenatal development with a focus on the development of the face, neck and oral cavity. This course also introduces the pathologic processes and recognition of oral manifestations and their considerations to the practice of dental hygiene.

DHYG 331 Clinical Dental Hygiene I 2 credits

The first clinical course in a series where students gain clinical proficiency by providing dental hygiene services to patients. Emphasis is placed on basic preventive skills and dental hygiene instrumentation.

DHYG 332 Clinical Seminar I 2 credits

This course is designed to reinforce topics covered in DHYG 311 through the use of advanced case studies. Emphasis will be placed on evidence-based decision making. Also designed to collaborate with clinic needs as identified in DHYG 331.

DHYG 333 Clinical Dental Hygiene IS 2 credits

Students gain clinical proficiency by providing dental hygiene services to patients. Emphasis is placed on increasing competency in basic dental hygiene skills and comprehensive patient care.

DHYG 334 Dental Practice Management 1 credits

This course is designed to equip the dental hygiene student with the skills necessary to navigate the business and administration side of dentistry. A focus on networking, dental procedure codes and insurance protocol will be covered.

DHYG 336 Culturally Aware Health Care 3 credits

Concepts of "Global Citizenship" and "Intercultural Competency" are desired attributes of future health care professionals. Students will self-assess their cultural knowledge in preparation for international travel. Interacting with individuals from different cultural backgrounds will provide the opportunity for students to become aware of their own cultural understanding and improve critical thinking and interpersonal skills. Through travel and experiential learning, the students will begin to develop the capacity to identify, discuss and reflect upon the ethical challenges presented in political, social, and personal lives to understand diverse world views of social justice and common good. Diverse Cultures: Gold

DHYG 420 Local Anesthesia 1 credits

This course is designed to be a study of the fundamental elements, purposes, and uses of local anesthesia for the dental hygienist.

DHYG 421 Clinical Dental Hygiene II 3 credits

The second clinical course in a series where students gain clinical proficiency by providing dental hygiene services to patients. Emphasis is placed on increasing clinical competency in basic dental hygiene skills and comprehensive patient care.

DHYG 422 Clinical Seminar II 1 credits

This course focuses on clinical procedures, educational techniques and legal and ethical issues as they apply to the patient- dental hygiene provider relationship.

DHYG 424 Nitrous Oxide Sedation 1 credits

The course is designed to be a study of the fundamental elements, purposes and uses of nitrous oxide sedation in the practice of dental hygiene. This course meets the educational criteria established by the Minnesota Board of Dentistry.

DHYG 425W Community Dental Health 3 credits

This course introduces second year dental hygiene students to the disciplines and basic principles of community dental health, epidemiologic methods and biostatistical measurement analysis. Preventive oral health measures and program development is included to provide a background for the practical application of dental public health methods to the community. This course is an upper division writing intensive course for the traditional dental hygiene program.

DHYG 426 Dental Hygiene Jurisprudence and Ethics 1 credits

This course focuses on legal and ethical issues as they apply to the patient-healthcare provider relationship and legally delegated duties that a licensed dental hygienist may perform. Students will become aware of clinical procedures and educational techniques that will enhance the level of care provided in a clinical setting, issues affecting the patient-healthcare provider relationship, and legally delegated duties of a dental hygienist.

DHYG 427 Periodontology II 2 credits

Didactic and clinical study of etiology, diagnosis, preventive and therapeutic procedures involved with periodontal disease.

DHYG 428 Technology in Dentistry 1 credits

This course is designed to prepare the dental hygiene student in the use of new technologies in the modern dental office.

DHYG 431 Clinical Dental Hygiene III 3 credits

The final clinical course in a series where students gain clinical proficiency by providing dental hygiene services to patients. Emphasis is placed on preparing for the transition from dental hygiene student to practitioner.

DHYG 432 Clinical Seminar III 2 credits

This course focuses on preparing dental hygiene students to articulate into the professional workforce. Emphasis is placed on resume writing, interviewing skills, and career options.

DHYG 435 Community Practicum 2 credits

This course is designed to introduce students to their roles and responsibilities as educators and resource persons by promoting optimal oral health at the community level.

DHYG 437 Dental Management of the Medically Compromised Patient **2 credits**

The course is designed to provide the dental hygiene practitioner with a survey of common medical disorders that may be encountered in a dental practice. The medical problems are organized to provide a brief overview of the basic disease process, etiology, incidence, prevalence, behavior characteristics, medications and oral manifestations commonly presented by the dental patients. As a result of the accumulation of evidence-based research, the dental hygiene practitioner will be provided with an understanding of the disease, recognize the severity of the common medical disorders and make a dental management decision providing the patient with the highest possible level of oral health.

DHYG 438 Advanced Community Practice I **1 credit**

The first of two clinical courses designed to utilize the assessment, planning, implementation and evaluation process in a community-based setting. This course will address efforts to reduce incidence and severity of oral diseases resulting in improved access to community oral health in complex cases.

DHYG 439 Advanced Community Practice II **1 credit**

This is the second of two clinical courses designed to utilize the assessment, planning, implementation and evaluation process in a community-based setting. This course will address efforts to reduce incidence and severity of oral diseases resulting in improved access to community oral health in complex cases.

DHYG 441 Advanced Dental Hygiene Practice **3 credits**

Identify clinical skills and knowledge needed to improve effectiveness as a dental hygienist. Areas addressed: ultrasonic implementation using multiple types of devices, risk factor analysis, comprehensive treatment planning, Periscope (endoscope), carbide/diamond files, advanced instrumentation techniques, patient management, case presentation.

DHYG 442 Current Issues in Dental Hygiene **3 credits**

Topics included but not be limited to: advanced practice models to expand oral health services, including restorative procedures; counseling regarding smoking cessation; recent medical advances in the field of dentistry and legal and policy issues currently impacting dental hygiene.

DHYG 443 Technology in Oral Health **3 credits**

Assessment, planning, implementation and evaluation of the impact of emerging dental technology. Topics include dental practice software management, digital radiography, intro-oral cameras, patient education software, lasers in dentistry, and internet information sources for both practitioners and patients.

DHYG 444 Principles of Oral Health Promotion **3 credits**

Leadership preparation in the delivery of oral health care in the public health model. Emphasis will be placed on defining oral health problems and solutions, community planning, implementation and evaluation based on the oral health objectives of Healthy People 2010.

DHYG 444W Principles of Oral Health Promotion **3 credits**

Leadership preparation in the delivery of oral health care in the public health model. Emphasis will be placed on defining oral health problems and solutions, community planning, implementation and evaluation based on the oral health objectives of Healthy People 2010.

DHYG 445 Educational Methods in Dental Hygiene **3 credits**

Examines educational methods needed for effective dental hygiene instruction. Topics addressed within this course will include learner and context analysis, performance objectives, assessment instruments, instructional strategies, formative and summative evaluations. Emphasis will be placed on competency-based instruction.

DHYG 447 Dental Health Study Abroad **1-3 credits**

The purpose of this course is to introduce students to first-hand experience in providing dental hygiene services through a study abroad opportunity. This course centers on an international week-long, service-learning project in a foreign country. Most of our time and effort will be spent providing dental hygiene treatment. This course will also address ethics, cultural issues, standard of care issues, as well as challenges in providing dental hygiene care in a foreign country. Diverse Cultures: Gold

DHYG 451 Dental Hygiene Care Planning **3 credits**

This course provides a framework for comprehensive patient-centered care using the Human Needs Conceptual Model to prevent oral disease and to promote health and wellness.

DHYG 452 Decision Making in Periodontology **3 credits**

Combines the sciences and knowledge in the discipline of dental hygiene that permits synthesis and application of periodontal treatment techniques. Surgical and aggressive management of medically compromised periodontal patients will be addressed in this course.

DHYG 453W Research Methods in Dental Hygiene **3 credits**

Students will discover research and writing careers for dental hygienists. Course will provide awareness of the American Dental Hygienists' Association research agenda. Various research methods will be explored and students will develop skills related to locating and evaluating scientific literature to make evidence-based decisions. Professional writing skills will be developed throughout the course.

DHYG 454 Oral Health Promotion Practice **3 credits**

Demonstration of oral health delivery in community-based clinics embracing oral health promotion efforts as a methodology. Increasing demand for care, dental services and prevention resulting in reduction of oral diseases and improved community oral health.

Prerequisites: DHYG 444

DHYG 455 Educational Practice in Dental Hygiene **3 credits**

Applies content from Principles of Educational Methods to support the role of dental hygiene educator in didactic and clinical instruction. Active participation in course design, delivery and evaluation in classroom, on-line or clinical format with emphasis on competency-based instruction.

Prerequisites: DHYG 445

DHYG 456 Oral Medicine and Treatment Planning **2 credits**

This course is designed to facilitate critical thinking skills related to drugs used in dentistry and medicine with emphasis placed on the impact of the dental hygiene diagnosis.

DHYG 460 Restorative Functions Seminar **2 credits**

Students will learn the characteristics of direct restorative materials. In a laboratory setting on typodont, students will place, contour, and adjust direct restorative materials. This is the first course in a series.

Prerequisites: DHYG 322, DHYG 326

DHYG 461 Restorative Functions Clinic I **1 credit**

Students work on patients in a clinical setting to place, contour, and adjust direct restorative materials in accordance with MN Statute. This is the second course in a series.

Prerequisites: DHYG 322, DHYG 326, DHYG 460

DHYG 462 Restorative Functions Clinic II **1 credit**

This course is the final clinical course in a series of courses in which students gain clinical proficiency by completing required patient experiences and final clinical test to fulfill State of Minnesota requirements to earn a certificate in restorative functions.

Prerequisites: DHYG 322, DHYG 326, DHYG 460, DHYG 461

DHYG 499 Individual Study **1-6 credits**

Economics

ECON 100 (3.00) An Introduction to the U.S. Economy **3 credits**

Brief description of the operation of the US economic system illustrated by a discussion of current economic policies, issues, and problems. No credit toward a major, minor, or area with economics as a core, or if credit has been earned in ECON 201 and/or ECON 202, or equivalent.

ECON 103W The Economics of Women's Issues and Public Policy in the United States **3 credits**

This course will examine the gendered nature of public policy using standard microeconomic tools. It examines the impact of public policy on employment discrimination, reproductive rights, and sexual orientation. Diverse Cultures: Purple

ECON 201 Principles of Macroeconomics **3 credits**

Emphasis on forces influencing employment and inflation. Current problems of the economy are stressed along with tools government has to cope with them.

ECON 202 Principles of Microeconomics **3 credits**

Examines decision making by the individual firm, the determination of prices and wages, and current problems facing business firms.

ECON 207 Business Statistics **4 credits**

Basic statistical methods including measures of central tendency and dispersion, probability, probability distributions, sampling, problems of estimation and hypothesis testing in the case of one and two sample means and proportions. Chi-Square, one-way analysis of variance, simple regression and correlation analysis, and brief introduction to multiple regression analysis. Use of computer statistical packages required.

Prerequisites: MATH 112 or equivalent

ECON 301 Introduction to Mathematical Economics **3 credits**

This course will introduce the student to the use of mathematics in economic analysis. Topics include optimization methods, comparative statics, and linear algebra.

Prerequisites: ECON 201, ECON 202, ECON 207, MATH 112 or equivalent

ECON 305 Money and Banking **3 credits**

A descriptive and analytical study of the basic principles of money, banking, and finance as they are related to business and public policy.

Prerequisites: ECON 201 and ECON 202

ECON 314W Current Economic Issues **3 credits**

Elementary economic background and analysis of housing, medical care, inflation, unemployment dilemma, pollution, poverty and affluence, balance between public and private sectors, transportation, urban problems, and other issues will be covered in this course.

ECON 320W Gender Issues and Economic Globalization **3 credits**

This course will provide tools for analyzing the effects of economic globalization on employment, distribution of income, economic development and socio-economic issues from a gender perspective. Diverse Cultures: Purple

Prerequisites: ECON 201 or ECON 202

ECON 355 Intermediate Microeconomics **3 credits**

A survey of imperfect competition, multiple-product firms, multiple-plant firms, and interest theory, designed to develop a system of economic thought.

Prerequisites: ECON 201, ECON 202 and ECON 301

ECON 356 Intermediate Macroeconomics **3 credits**

Study of factors determining aggregate level of production, employment, inflation, and implications of monetary and fiscal policies.

Prerequisites: ECON 201, ECON 202 and ECON 301

ECON 403 Labor Economics **3 credits**

Employment, wages, and economic security. The structure and impact of labor organizations and labor legislation.

Prerequisites: ECON 201 and ECON 202

ECON 405 Central Banking **3 credits**

A detailed examination of the Federal Reserve System and monetary policy. The topics will include a history of the Federal Reserve and its monetary tools and strategies: Monetarism, the demand for money, the money supply process, and the impact of financial deregulation on federal policy.

Prerequisites: ECON 305

ECON 406 Economics of Unions **3 credits**

Students examine the economics of unions, including the history of union activity, the development and impact of labor laws on labor markets, the economics of strikes and alternative dispute resolution systems, and the impact of unions on wages and price levels.

Prerequisites: ECON 201 and ECON 202

ECON 411 Urban Economics **3 credits**

Economic forces which account for the development of cities and application of principles to some of the major problems of the modern urban community.

Prerequisites: ECON 201 and ECON 202

ECON 412 Resource and Environmental Economics **3 credits**

Concepts and techniques for evaluating the alternative uses, management and development of natural resources.

Prerequisites: ECON 201 and ECON 202

ECON 416 Sports Economics **3 credits**

This course examines the economics of professional and collegiate sports and sports institutions. Students examine the market for sports competitions, the labor market for player talent, and the role government plays in the business of sports.

Prerequisites: ECON 202

ECON 420 International Economics 3 credits

The economic rationale for interregional trade: emphasis on current problems.

Prerequisites: ECON 201 and ECON 202

ECON 429 Economic Education 3 credits

Fundamental ideas and structure of economics with emphasis on the application of such ideas in the K-12 school curriculum.

ECON 440 Public Finance 3 credits

Public expenditures, taxes and other revenues, debts and financial administration at federal, state, and local levels.

Prerequisites: ECON 201 and ECON 202

ECON 450 Economic Development 3 credits

Economic underdevelopment and the relationships between mature economies and developing nations.

Prerequisites: ECON 201 and ECON 202

ECON 462W Econometrics 4 credits

The study of methods and techniques for building econometric models with the goal of forecasting and measurement of the economic relationships by integrating economic theory and statistics in it.

ECON 463 Applied Econometrics of Financial Markets 3 credits

This course is designed to cover basic tools in time series analysis and to equip students with quantitative skills to analyze the financial market. Fall

Prerequisites: ECON 207

ECON 472 Industrial Organization 3 credits

This course is an introduction to non-competitive markets using economic models and game theory.

Prerequisites: ECON 201, ECON 202 and ECON 207

ECON 480 Seminar in Economics 1-3 credits

Variable

Prerequisites: ECON 201 and ECON 202

ECON 481 Readings in Economics 1-3 credits

Variable

ECON 491 In-Service 1-3 credits**ECON 498 Internship** 1-3 credits

Prerequisites: ECON 207, ECON 355, ECON 356

ECON 499 Individual Study 1-3 credits

Prerequisites: ECON 201 and ECON 202

Education

ED 101 Introduction to Critical Race Theory in Education 3 credits

This course will introduce students to the "Courageous Conversations" protocol designed to facilitate healthy conversations about race, racial equity and social justice. Students will be introduced to the five tenants of Critical Race Theory (CRT) and learn how to isolate race, as they reflect on their own personal life experiences. Students will read relevant articles, discuss current events and examine common historical practices within the United States. Students will actively engage in dialogue focused on the role race and racism have in perpetuating social disparities between dominant and marginalized racial groups, and actively engage in small and large group discussions. Diverse Cultures: Purple

ED 210 Independent Study 1-10 credits

ED 220 Field Study 1-10 credits

ED 230 Individual Study 1-10 credits

ED 240 Research 1-10 credits

ED 250 Internship 1-10 credits

ED 310 Independent Study 1-10 credits

ED 320 Field Study 1-10 credits

ED 330 Individual Study 1-10 credits

ED 340 Research 1-10 credits

ED 350 Internship 1-10 credits

ED 400 Seminar 1-10 credits

ED 420 Field Study 1-10 credits

ED 430 Individual Study 1-10 credits

ED 440 Research 1-10 credits

ED 450 Internship 1-10 credits

ED 490 Workshop 1-3 credits

ED 499 Individual Study 1-4 credits

Educational Studies: k-12 & Secondary Program

KSP 106 Education & Culture in the United States 1 credits

Course gives students new to this country and to the U.S. higher education a broad overview of the U.S. educational system and provides a forum for discussion and comparison of customs and beliefs as they affect relationships among students and professors.

Prerequisites: International Student

KSP 150 Exploring Careers in Education 3 credits

In order to explore careers in education, students will have the opportunity to identify and investigate issues of social justice in education and build skills of an educator through experiential learning in schools. Student will engage in a hands-on, interactive exploration and investigation into the complex roles of race, culture, and identity in education. Diverse Cultures: Gold

KSP 200 Critical Issues in Public Education 3 credits

This course will engage students in an in-depth exploration of how the challenges and demands imposed by an ever evolving diverse, legalistic, politically minded, and technologically driven society impact public education in America today. Students will research central issues and critically analyze to foster ethical and civil responsible decision making. Fall, Spring, Summer Diverse Cultures: Gold

KSP 202 Technology Integration in the Classroom **1 credits**

Teacher candidates will develop skills to access information and integrate technology to improve learning for PK-12 students. Teacher candidates research, select, and evaluate information about diverse populations to design classroom applications using a wide variety of instructional technology.

KSP 220W Human Relations in a Multicultural Society **3 credits**

Study of interpersonal skills, motivation, and group skills. Applied to educational settings. There will be 30 hours of field experience outside of class (collaborative for KSP 222 and 220W). Meets State of Minnesota human relations requirement for teacher licensure. Diverse Cultures: Gold

KSP 222 Introduction to the Learner and Learning **2 credits**

Teacher candidates develop understanding of cognitive, language, personal and social development for implications on teaching in the inclusive classroom. Dispositions and skills will be developed for recognizing and accommodating exceptionality in student learning.

Corequisites: KSP 220W, KSP 222

KSP 235 Human Development **3 credits**

Designed for non-teacher education students, this is a general education course considering human development from a life span perspective.

KSP 330 Planning and Instruction in the Classroom **3 credits**

The course is designed to guide K-12 and 5-12 teacher candidates through the design, implementation, and assessment of a standards-based curriculum. Candidates will analyze standards, create assessments, and design and delivery of instruction in a field-site.

KSP 334 Assessment & Evaluation **3 credits**

Course content addresses formal and informal, standardized evaluation of learner achievement in the classroom and programmatic evaluation. Assigned projects will accommodate the student's present/future professional career track.

KSP 440 Creating Learning Environments to Engage Children, Families, and Community **3 credits**

Teacher candidates will further develop processes for creating and sustaining a classroom learning environment that enables success for all learners, including interacting with diverse families, school colleagues, and representatives from community agencies to support student engagement and learning.

Corequisites: KSP 440, KSP 442

KSP 442 Reading, Literacy, and Differentiated Instruction in Inclusive Classrooms **3 credits**

Teacher candidates will develop skills in differentiated instruction, reading and content-based literacy in inclusive classrooms. Teacher candidates will integrate prior knowledge of diverse learners, developmental models of learning, and curriculum and instruction into a comprehensive understanding of teaching.

Corequisites: KSP 440, KSP442

KSP 450 Human Relations in a Multicultural Society **3 credits**

Study of interpersonal skills. Motivation, and group skills. Applied to educational settings. Required 18 hours clinical service-learning experience (out-of-class). Meets State of Minnesota human relations requirement for teacher licensure. Graduate students will have additional course requirements.

KSP 464 Professional Seminar **1 credits**

Content focus is on professional rights, responsibilities, and development; student rights and responsibilities; and legal issues regarding data privacy and confidentiality. Skills of professional development, inquiry, reflection, coaching, and collaboration will be developed, practiced, and monitored.

KSP 476 K-12 Student Teaching **11 credits**

Student teaching in the K-12 schools including weekly seminar for K-12 majors.

Prerequisites: Admission to student teaching.

Corequisites: KSP 475

KSP 477 5-12 Student Teaching **11 credits**

Student teaching in the secondary school including weekly seminar for 5-12 majors. Prereq: KSP 420

Prerequisites: admission to student teaching.

KSP 480 Seminar **1-3 credits**

In depth study and narrow focus on an educational topic. Students do extended research outside of class and defend their research in class. Graduate students will have additional course requirements.

KSP 482 (3-6) Enrichment Experience Secondary **3-6 credits**

Student teaching projects determined jointly between student and advisor.

Corequisites: KSP 477 or KSP 476

KSP 489 Selected Topics **1-3 credits**

Specific focus on an educational topic that may be taught as a regular course such as: Topic: Web Resources for the Classroom (usually a group requests a specific topic.) Graduate students will have additional course requirements.

KSP 490 Workshop **1-6 credits**

Specific focus on an educational topic that is conducted for a special group. Graduate students will have additional course requirements.

KSP 491 In-Service **1-4 credits**

Specific course designed to meet changing educational trends. Graduate students will have additional course requirements.

KSP 497 Internship **1-8 credits**

On-the-job training. Work is jointly supervised by the academic unit and the cooperating institution.

KSP 499 Individual Study **1-6 credits**

Electrical Engineering

EE 100 Explorations in Engineering **1 credit**

This course offers an introduction to the various disciplines of engineering and their relationship to the principles of physics and mathematics. Students are prepared for academic success and the transition into an engineering program.

EE 105 Introduction to Electrical and Computer Engineering and Technology **1 credit**

To prepare students for engineering and technology education and profession through interactions with upper-class students, graduate students and practitioners from academia and industry; to prepare students for a career in electrical and computer engineering and technology.

EE 106 Fundamental Digital System Design for Electrical and Computer Engineers **3 credits**

This introductory course covers digital systems topics including binary numbers, logic gates, Boolean algebra, circuit simplification using Karnaugh maps, flip-flops, counters, shift registers and arithmetic circuits. Problem solving methods, study skills and professional development will be addressed throughout the course.

Prerequisites: MATH 112

EE 107 Intro to Electrical and Computer Engineering Through Software Development **3 credits**

This course presents algorithmic approaches to problem solving and computer program design using the C language. Students will explore Boolean expressions, implement programs using control structures, modular code and file input/output, and interface with external hardware using robots and sensors.

EE 230 Circuit Analysis I **3 credits**

This course is meant to develop Electrical Engineering Circuit Analysis skills in DC and AC circuits. It includes circuit laws and theorems, mesh and node analysis. Natural and step response of RL, RC, and RLC circuits.

Prerequisites: PHYS 222 or concurrent, MATH 321 or concurrent

EE 231 Circuit Analysis II **3 credits**

Continuation of Circuit Analysis I to include special topics in circuit analysis.

Prerequisites: EE 230 and EE 240, MATH 321, PHYS 222

EE 234 Microprocessor Engineering I **3 credits**

A course that teaches how to write computer assembly language programs, make subroutine calls, perform I/O operations, handle interrupts and resets, interface with a wide variety of peripheral chips to meet the requirements of applications.

Prerequisites: EE 107 or EET 142

EE 235 Microprocessor Engineering Laboratory I **1 credit**

Use of development boards and assembly language programming to handle interrupts, interface with parallel I/O ports, memory, and timers. Experiments will involve signal and frequency measurements, data conversions, and interface design. EE 234 must be completed before taking this course or taken concurrently. If you would like to take it concurrently, please contact the instructor for permission.

Prerequisites: EE 234

Corequisites: EE 234

EE 240 Evaluation of Circuits **1 credit**

Laboratory support for EE 230. Use of laboratory instrumentation to measure currents and voltages associated with DC and AC circuits. Statistical analysis of measurement data. Measurements of series, parallel and series-parallel DC and AC circuits. Measurement of properties for circuits using operational amplifiers. Measurement of transient responses for R-L and R-C circuits. Simulation of DC and AC circuits using PSPICE. Concepts covered in EE 230 will be verified in the laboratory. Pre-req: Must be taken concurrently with EE 230.

Prerequisites: Must be taken concurrently with EE 230.

EE 241 Electric Circuits Lab **1 credit**

This is the lab associated with EE231 class giving students hands on experience of building and testing AC circuits

Prerequisites: EE, 230, EE 231, EE 240

Corequisites: EE 230

EE 244 Introduction to Digital Systems **2 credits**

Simple coding schemes, Boolean algebra fundamentals, elements of digital building blocks such as gates, flip-flops, shift registers, memories, etc.; basic engineering aspects of computer architecture.

EE 245 Robotics Programming and Algorithms **3 credits**

This course covers robotic programming using the object-oriented programming language C++ where the program is embedded in the robot controller. Algorithms and design strategies that are specifically for robotic applications are introduced. The course also introduces the Robot Operating System (ROS) and the utilization of ROS for robotic programming and sensor data processing on mobile robotic electrical systems. In addition to the lecture, the course includes a lab that involves robotic hardware and software for the experiments of various robotic algorithms on real robots.

Prerequisites: CIS 122

EE 253 Logic Circuits Lab **1 credit**

Laboratory support to complement EE 244. Use of laboratory instrumentation to measure characteristics of various logic circuits and digital subsystems. Experimental evaluation of digital logic devices and circuits including logic gates, flip-flops, and sequential machines.

Prerequisites: EE 230 and concurrent with EE 244.

EE 254 Digital and Circuits Lab **1 credit**

Laboratory support for EE 231 and EE 244. Experimental evaluation of AC and transient circuits, digital logic devices including logic gates, flip flops, and sequential machines.

Prerequisites: EE 230, EE 240 and concurrently with EE 231 and EE 244

EE 281 Digital System Design with Testability **3 credits**

Introduction to representing digital hardware using a hardware description language. Introduction to implementation technologies such as PALs, PLAs, FPGAs and Memories. Analysis, synthesis and design of sequential machines; synchronous, pulse mode, asynchronous and incompletely specified logic.

Prerequisites: EE 106, EE 107

EE 282 Digital System Design with Testability Lab **1 credit**
Laboratory support for EE 282 practical aspects of design and analysis of different types of sequential machines will be presented through laboratory experience.

Corequisites: EE 281

EE 298 Topics **1-4 credits**
Varied topics in Electrical and Computer Engineering. May be repeated as topics change. Pre-req: to be determined by course topic

Prerequisites: to be determined by course topic

EE 303 Introduction to Solid State Devices **3 credits**
Introduction to crystal structure, energy band theory, conduction and optical phenomenon in semiconductors, metals and insulators. Study of equilibrium and non-equilibrium charge distribution, generation, injection, and recombination. Analysis and design of PN-junctions, (bipolar transistor, junction) and MOS field-effect transistors. Introduction to transferred electron devices and semiconductor diode laser.

Prerequisites: PHYS 222, and MATH 321

EE 304 Lab: Introduction to Solid State Devices **1 credit**
Laboratory support for EE 303. Experiments include resistivity and sheet resistance measurements of semiconductor material, probing material, probing of IC chips, PN-junction IV and CV measurements, BJT testing to extract its parameters, MOSFET testing and evaluating its parameters, cv-measurements of MOS structure, and familiarization with surface analysis tools.

EE 332 Electronics I **3 credits**
Introduction to discrete and microelectronics circuits including analog and digital electronics. Device characteristics including diodes, BJTs, JFETs, and MOSFETs will be studied. DC bias circuits, small and large signal SPICE modeling and analysis and amplifier design and analysis will be discussed.

Prerequisites: EE 231

EE 333 Electronics II **3 credits**
This second course of the electronics sequence presenting concepts of feedback, oscillators, filters, amplifiers, operational amplifiers, hysteresis, bi-stability, and non-linear functional circuits. MOS and bipolar digital electronic circuits, memory, electronic noise, and power switching devices will be studied. Spring

Prerequisites: EE 332

EE 334 Microprocessor Engineering II **3 credits**
A more advanced study of microprocessors and microcontrollers in embedded system design. Use of C language in programming, interrupt interfaces such as SPI, I2C, and CAN. External memory design and on-chip program memory protection are also studied.

EE 336 Principles of Engineering Design I **1 credit**
Electrical and computer engineering project and program management and evaluation techniques will be studied. Emphasis will be placed on the use of appropriate tools for planning, evaluation, and reporting on electrical and computer engineering projects. Prereq: Junior Standing and Admission into the Electrical or Computer Engineering program.

Prerequisites: Junior Standing

EE 337 Principles of Engineering Design II **1 credit**
Application of the design techniques in the engineering profession. Electrical engineering project and program management and evaluation including computer assisted tools for planning and reporting, design-to-specification techniques and economic constraints.

Prerequisites: EE 336

EE 341 Signals & Systems **3 credits**
Analysis of linear systems and signals in the time and frequency domain. Laplace and Fourier transforms. Z-transform and discrete Fourier transforms.

Prerequisites: EE 230, MATH 321 and PHYS 222

EE 342 Electronics Laboratory **1 credit**
This lab is designed to accompany EE 332. The lab covers the experimental measurement and evaluation of diode, BJT, and MOS characteristics; various feedback topologies; oscillator and op-amp circuits; and rectifiers and filter circuitry.

Prerequisites: EE 231 and EE 332 taken concurrently.

EE 343 Electronics II Laboratory **1 credit**
This course will accompany EE 333 course dealing with laboratory experience of designing, evaluating and simulation of source and emitter coupled logic circuits, output stages and power amplifiers, negative feedback amplifiers, oscillator circuits, Multivibrators, Schmidt Trigger, 555 timer application to Multivibrators, Memory circuits, CMOS logic circuits, signal generating and waveform shaping circuits.

Prerequisites: EE 332, EE 333

EE 344 Microprocessor II Laboratory **1 credit**
Laboratory support for EE 334. Use of development boards and C programming language to handle I/O devices, interrupts, and all peripheral functions. Multiple functions such as timers, A/D converters, I/O devices, interrupts, and serial modules will be used together to perform desired operations.

Prerequisites: Concurrent with EE 334

EE 350 Engineering Electromagnetics **3 credits**
Vector fields. Electrostatic charges, potential and fields; displacement. Steady current/current density; magnetostatic fields, flux density. Materials properties. Faraday's Law and Maxwell's equations. Skin effect. Wave propagation, plane waves, guided waves. Radiation and antennas. Transmission line theory.

Prerequisites: EE 231, MATH 223, MATH 321 and PHYS 222

EE 353 Communication Systems Engineering **3 credits**
Signals and Systems, Fourier transforms, Parseval's theorem. Autocorrelation functions and spectral density functions. Information theory. Noise and noise figure, probability and statistics. Transformation of random variables, probability of error and bit error rate. Modulation and demodulation. Overview of analog, sampled analog and digital communication systems. Spread spectrum systems.

Prerequisites: EE 341, MATH 223

EE 358 Control Systems **3 credits**

Theory and principles of linear feedback control systems. Analysis of linear control systems using conventional techniques like block diagrams, Bode plots, Nyquist plots and root-locus plots. Introduction to cascade compensation: proportional, derivative and integral compensation. State space models.

Prerequisites: EE 341

EE 363 Communication Systems Laboratory **1 credit**

Measurement techniques using the oscilloscope, spectrum analyzer and network analyzer. Signals and spectra. Frequency response. Noise and noise figure measurements. Intermodulation products. Amplitude and frequency modulation/demodulation. Sampling, aliasing, and intersymbol interference. Bit error measurement.

Prerequisites: Concurrent with EE 353

EE 368 Control Systems Laboratory **1 credit**

Laboratory support for EE 358. Experimental evaluation of basic control system concepts including transient response and steady state performance. Analog and digital computers.

Prerequisites: EE 341 and concurrent with EE 358

EE 390 Smart Sensor Systems **3 credits**

This course explains the interfacing method between a sensor and the microcontroller, describes the features and functions of several frequently used sensors, it then proceeds to explore the subject of sensor fusion, describe the algorithms how multiple sensors are used to extract correct and more useful information than each individual single sensor; finally the course also explores how a large number of sensor nodes are connected together via the wireless networking technologies to enable the monitoring and control of our environment to improve our life.

Prerequisites: EE334 & EE344

EE 395 Computer Hardware and Organization **3 credits**

High-level language constructs using a selected assembly language, design alternatives of computer processor datapath and control, memory hierarchy/management unit, use of HDL in describing and verifying combinational and sequential circuits. Design of computer processor and memory system.

Prerequisites: EE 234, EE 235, EE 281

EE 398 CPT: Co-Operative Experience **0 credits**

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: EE 235. At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

EE 445 Mobile Robotics **3 credits**

This course covers the fundamentals of mobile robotic modeling, control, sensing and navigation planning. Frame coordinate systems and transformations are introduced along with physics driven dynamic differential continuous as well as discrete difference models. Algorithms associated with controller synthesis applied to path following based on sensor feedback are derived. The course also introduces electrical and mechanical implementation concepts in mobile robotic system design. In addition to the lecture, the course includes a laboratory component that involves the design and construction of robotic hardware and the development of associated software to test various robotic algorithms on real robots.

Prerequisites: EE 358

EE 450 Engineering Economics **3 credits**

Overview of accounting and finance and their interactions with engineering. Lectures include the development and analysis of financial statements, time value of money, decision making tools, cost of capital, depreciation, project analysis and payback, replacement analysis, and other engineering decision making tools.

Prerequisites: Advanced standing in the program

EE 453 Advanced Communications Systems Engineering **3 credits**

Behavior of analog systems and digital systems in the presence of noise, principles of digital data transmission, baseband digital modulation, baseband demodulation/detection, bandpass modulation and demodulation of digital signals. Channel coding, modulation and coding trade-offs, spread spectrum techniques, probability and information theory.

Prerequisites: EE 353 and EE 363

EE 463 Advanced Digital System Design **3 credits**

Design of combinational and sequential systems and peripheral interfaces. Design techniques using MSI and LSI components in an algorithmic state machine; implementation will be stresses. Rigorous timing analysis transmission-line effects and metastability of digital systems will be studied.

Prerequisites: EE 244

EE 467W Principles of Engineering Design III **1-2 credits**

The design and organization of engineering projects. Project proposals, reporting, feasibility studies, and interpretation. Specification preparation, interpretation, and control. Issues involving creativity, project planning and control, and intellectual property rights. Students enrolled in this course must initiate and complete a design project in a small team format.

Prerequisites: EE 332, EE 337, EE 341, EE 358. **Select One Course:** EE 333, EE 390. **Select One Course:** EE 334, EE 353. **Select One Course:** EE 350, EE 395

EE 470 Wireless Networking **3 credits**

The features, data rate, frequency range, and operation of several wireless networking protocols such as Wi-Fi, Low Energy Bluetooth, Near Field Communication, Radio frequency Identifier (RFID), Threads, and ZigBee that can be used to implement Internet of Things (IoT) are introduced. The electrical, functional, and procedural specifications of Wi-Fi are then examined in detail. The programming and data transfer using the hardware Wi-Fi kit are carried out to demonstrate the versatility of this protocol.

EE 471 Advanced Control Systems**3 credits**

This course is a continuation of EE 358. Techniques for the analysis of continuous and discrete systems are developed. These techniques include pole placement, state estimation, and optimal control.

Prerequisites: EE 358 and EE 368

EE 472 Digital Signal Processing**3 credits**

Develop design and analysis techniques for discrete signals and systems via Z-transforms, Discrete Fourier Transforms, implementation of FIR and IIR filters. The various concepts will be introduced by the use of general and special purpose hardware and software for digital signal processing.

Prerequisites: EE 341

EE 473 Electrical Power Systems Analysis and Design**3 credits**

Power generation, transmission and consumption concepts, electrical grid modeling, transmission line modeling, electric network power flow and stability, fault tolerance and fault recovery, economic dispatch, synchronous machines, renewable energy sources and grid interfacing.

Prerequisites: EE 231 or via permission from instructor

EE 474 Power Electronics**4 credits**

This course is designed to provide students with knowledge of the design and analysis of static power conversion and control systems. The course will cover the electrical characteristics and properties of power semiconductor switching devices, converter power circuit topologies, and the control techniques used in the applications of power electronic systems. Laboratories consist of computer-based modeling and simulation exercises, as well as hands-on laboratory experiments on basic converter circuits and control schemes.

Prerequisites: EE 333

EE 475 Integrated Circuit Engineering**3 credits**

Introduction to theory and techniques of integrated circuit fabrication processes, oxidation, photolithography, etching, diffusion of impurities, ion implantation, epitaxy, metallization, material characterization techniques, and VLSI process integration, their design and simulation by SUPREM.

Prerequisites: EE 303 and EE 332

EE 476 Antennas, Propagation, & Microwave Engineering**3 credits**

Principles of electromagnetic radiation, antenna parameters, dipoles, antenna arrays, long wire antennas, microwave antennas, mechanisms of radio wave propagation, scattering by rain, sea water propagation, guided wave propagation, periodic structures, transmission lines, microwave/millimeter wave amplifiers and oscillators, MIC & MMIC technology.

Prerequisites: EE 350

EE 477W Principles of Engineering Design IV**1-2 credits**

Completion of design projects and reports. Lectures on ethics, issues in contracting and liability, concurrent engineering, ergonomics and environmental issues, economics and manufacturability, reliability and product lifetimes. Lectures by faculty and practicing engineers.

Prerequisites: EE 467 and Senior Standing

EE 478 Digital Signal Processing Lab**1 credit**

Digital signal processing (DSP) has a wide variety of applications such as but not limited to: voice and audio processing, biomedical signal analysis, mobile and internet communications, radar and sonar, image/video processing. This course will strengthen student's knowledge of DSP fundamentals and familiarize them with practical aspects of DSP algorithm development and implementation. Students will develop the ability to implement DSP algorithms for real-time performance with a floating-point DSP chip.

Prerequisites: EE 472

Corequisites: EE 472

EE 479 Superconductive Devices**3 credits**

Magnetic and superconducting properties of materials, microscopic theory of superconductivity and tunneling phenomenon. Josephson and SQUID devices, survey of computer memories, memory cell and shift register, A/D converters and microwave amplifiers. Integrated circuit technology and high temperature superconductors.

Prerequisites: EE 303

EE 480 Integrated Circuit Fabrication Lab**1 credit**

Introduction to integrated circuit fabrication processes, device layout, mask design, and experiments related to wafer cleaning, etching, thermal oxidation, thermal diffusion, photolithography, and metallization. Fabrication of basic integrated circuit elements pn junction, resistors, MOS capacitors, BJT and MOSFET in integrated form. Use of analytic tools for in process characterization and simulation of the fabrication process by SUPREM.

Prerequisites: Concurrent with EE 475

EE 481 VLSI Design Laboratory**1 credit**

This laboratory accompanies EE 484. The laboratory covers the basics of layout rules, chip floor planning, the structure of standard cells and hierarchical design, parasitic elements, routing, and loading. Students will learn to design and layout standard cells as well as how to use these cells to produce complex circuits. The laboratory culminates with the individual design and layout of a circuit.

Prerequisites: Concurrent with EE 484

EE 482 Electromechanics**3 credits**

Electrical power and magnetic circuit concepts, switch-mode converters, mechanical electromechanical energy conversion, DC motor drives, feedback controllers, AC machines and space vectors, permanent magnet AC machines and drives, induction motors and speed control of induction motors, stepper motors.

Prerequisites: EE 230

EE 483 Introduction to Smart Grid**3 credits**

his course covers cutting-edge areas of the study in smart grid and power systems. This course will cover fundamentals of power flow calculation, wind power and its integration, solar power and its integration, distributed generation sources, energy storage devices and electric vehicles. The basic ideas of the integration of microgrid with distribution networks, the demand response and demand side management, and electricity market will be introduced. Moderate work of programming in professional power systems software tools, PowerWorld and PSCAD will be required.

Prerequisites: EE333

EE 484 VLSI Design 3 credits

The basics of digital VLSI technology. Bipolar and MOS modeling for digital circuits. Physical transistor layout structure and IC process flow and design rules. Custom CMOS/BICMOS static and dynamic logic styles, design and analysis. Clock generation, acquisition, and synchronization procedures. Special purpose digital structures including memory, Schmitt triggers, and oscillators. Individual design projects assigned.

Prerequisites: EE 333

EE 485 ASIC Design 4 credits

This course focuses on CMOS Application Specific Integrated Circuit (ASIC) design of Very Large Scale Integration (VLSI) systems. The student will gain an understanding of issues and tools related to ASIC design and implementation. The coverage will include ASIC physical design flow, including logic synthesis, timing, floor-planning, placement, clock tree synthesis, routing and verification. An emphasis will be placed on low power optimization. The focus in this course will be Register-transfer level (RTL) abstraction using industry-standard VHDL/Verilog tools.

Prerequisites: EE 484

EE 486 Signal and Power Integrity 3 credits

This course covers the signal and power integrity design for high-speed digital circuits and systems. Four types of design approaches at different levels are presented. They include the intuitive approach, the analytical analysis, the numerical simulation and the experimental-based methods. This course offers a framework for understanding the electrical properties of interconnects and materials that apply across the entire hierarchy from on-chip, through the packages, to circuit boards, connectors and cables.

Prerequisites: EE 231, EE 341

EE 487 RF Systems Engineering 3 credits

Overview of wireless communication and control systems. Characterization and measurements of two-port RF/IF networks. Transmission lines. Smith chart. Scattering parameters. Antenna-preselector-preamplifier interface. Radio wave propagation. Fading. RF transistor amplifiers, oscillators, and mixer/modulator circuits. Multiple access techniques. Transmitter/receiver design considerations. SAW matched filters.

Prerequisites: EE 353 and EE 363

EE 488 PLC Application in Modern Industrial Automation 4 credits

The students will learn and practice their PLC programming knowledge in the Industrial Automation LAB. Learn programming and implementation of servo drive, VFD, Human Machine Interface (HMI) programming, Cognex vision system and controlling in a close loop with Allen Bradley ControlLogix PLC hardware.

EE 489 Real-time Embedded Systems 4 credits

This course introduces students the recent advances in real-time embedded systems design. Topics cover real-time scheduling approaches such as clock-driven scheduling and static and dynamic priority driven scheduling, resource handling, timing analysis, inter-task communication and synchronization, real-time operating systems (RTOS), hard and soft real-time systems, distributed real-time systems, concepts and software tools involved in the modeling, design, analysis and verification of real-time systems.

Prerequisites: EE 107, EE 334, EE 395

EE 490 Engineering Applications of AI and ML 3 credits

Machine Learning (ML) is the study of algorithms that learn from data, and it has become pervasive in technology and science. This course is an introductory course on the application of Artificial intelligence (AI) & ML in the field of Electrical and Computer Engineering. The course has three units. The first unit introduces several ML algorithms and Python programming languages. The second unit deals with autonomous driving. The last part deals with AI & ML-based wireless network design.

Prerequisites: EE 341, EE 353

EE 491 In-Service Variable 1-4 credits**EE 494 Global Experience in Engineering and Technology 1 credit**

This class provides students pursuing a minor in Global Solutions in Engineering and Technology with an opportunity to explore a set of topics related to achieving success in advance of and following an international experience (internship, study abroad, etc.). Speakers will include faculty, graduate students, visiting researchers and industry members as well as student participants. Returning students will be required to participate in mentoring of students preparing for their international experience and provide written and/or oral presentations of various topics during the semester. This course is required both before and after participation in the international experience (min. 2 cr.)

EE 497 Internship Variable 1-6 credits**EE 498 Topics 1-4 credits**

Varied topics in Electrical and Computer Engineering. May be repeated as topics change.

Prerequisites: to be determined by course topic

EE 499 (1-6) Individual Study Variable 1-6 credits

Electronic Engineering Technology

EET 112 Elementary Electricity and Electronics 3 credits

The basic elements of electricity and electronics are explored in an internet enabled, self-paced course. Laboratories make use of a Virtual Laboratory environment to provide experience with issues in wiring, power, circuits, and digital electronics.

EET 113 DC Circuits 3 credits

A study of DC electrical circuits, Kirchhoff's laws, series and parallel circuits, inductors, capacitors, circuit response to RL, RC and RLC circuits. Thevenin's equivalent circuit theorem, and other network analysis theorems. Use of dependent sources in DC circuits. MATH 112 or 115 may be taken concurrently.

Prerequisites: MATH 112 or MATH 115

EET 114 AC Circuits 3 credits

A study of AC circuits, power, phasors, series and parallel AC networks, and network analysis theorems. Ohm's Laws and Kirchhoff's Laws for AC circuits. Use of dependent sources in AC circuits. MATH 113 or 115 must be taken concurrently.

Prerequisites: MATH 113 or MATH 115 may be taken concurrently.

EET 115 Understanding Computers 3 credits

A self-paced, interactive, multi-media course, for non-engineering students, exploring the basics of computer hardware. The course will cover concepts behind computer design and operation, including issues such as the need for RAM, hard drive, memory, ROM, etc.

EET 116 Communications-Past, Present & Future 3 credits

This is an introductory course in the use of technology for communication. During the semester students will study the evolution of communications technology from early days to the present. This course will cover wireless, analog, and digital techniques including telephony, the internet, and mobile formats. The student will study theory and principles involved in the different types of communications. Modern techniques in digital communications will be discussed and demonstrated through simulation. A consumer example of digital communication will be given.

EET 117 Introduction to Digital Electronics 3 credits

Hands-on experiences in the use of digital integrated circuits and logic families. Students will study logic gates, number systems, flip flops, latches, registers, computer arithmetic and memory. A self-paced format with an open laboratory format.

EET 118 Electricity - Generation, Usage & Green Alternatives 3 credits

This course covers the development and status of electrical power as a global resource. This includes usage, generation, and impact on societies throughout the world. Finally, the course will examine the many renewable generation options. Diverse Cultures: Purple

EET 125 Perspective on Technology 3 credits

Historical, cultural, ethical, philosophical, developmental, and creative aspects of engineering and technology as a discipline are explored. The course also examines concepts and events leading to important innovations of recent times including: microwave ovens, FAX machines, personal computers, traffic signals, and video games. Diverse Cultures: Purple

EET 141 Integrated Computer Technology I 4 credits

This course covers digital circuit and logic needed for electronic and computer engineering technology. Covers binary arithmetic, timing analysis, TTL, CMOS, logic gates, Boolean algebra, multiplexer, counter, adder, comparator, logic simulation, flip-flops, registers, and use of digital test equipment. Students design and build a complex architecture from small-scale logic components. Fall

Corequisites: EET 113

EET 142 Integrated Computer Technology II 4 credits

This course covers digital circuit and logic needed for electronic and computer engineering technology. Covers binary arithmetic, timing analysis, TTL, CMOS, logic gates, Boolean algebra, multiplexer, counter, adder, comparator, logic simulation, flip-flops, registers, and use of digital test equipment. Students design and build a complex architecture from small-scale logic components. Coreq: EET 113 Fall

Prerequisites: EET 141

EET 143 Integrated Computer Technology III 4 credits

Sequential circuits, logic timing, clock distribution, counter, LED display, shift register, transceiver, 555 timer, 555 oscillator, D/A converter, RAM, ROM, mass memory, synchronous logic, asynchronous logic, microprocessor-interfacing, testability, and simulation.

Prerequisites: EE 107, EET 142

EET 221 Electronic CAD 3 credits

Drafting principles involving use of computer electronic CAD software in laying out block diagrams, schematic diagrams, production drawings, graphical presentation of data, and printed circuit board layout and construction.

Prerequisites: EET 113

EET 222 Electronics I 4 credits

An introduction to semiconductor theory and circuits: includes characteristics curves, biasing techniques and small signal analysis of FETs and MOSFETs, feedback concept, BJT and FETs frequency response. Prereq: EET 114 or concurrent

Prerequisites: EET 113

EET 223 Electronics II 4 credits

An introduction to differential amplifier, linear and nonlinear operational amplifiers, power amplifiers, linear digital ICs, oscillators, power supplies, D/A, A/D conversion, four layered devices and their applications.

Prerequisites: MATH 121, PHYS 211, EET 222

EET 254 Microprocessors I 4 credits

A study of microcomputer hardware and software fundamentals, the instruction set and the addressing modes of a microprocessor/microcontroller, assembly programming, basic I/O concepts, parallel I/O methods, asynchronous serial I/O methods, synchronous serial I/O methods, A/D conversion, timer applications, and introduction to Internet of Things (IoT) and its impact to society. Spring

Prerequisites: EET 113

EET 298 Topics 1-4 credits

Varied topics in Electronic and Computer Engineering Technology. May be repeated as topics change.

Prerequisites: to be determined by course topic

EET 310 Programming Tools 4 credits

Several programming tools and their use in creating electronic hardware systems are covered in this course. Creating special-purpose hardware using numerical analysis programs written in C. Creating hardware utilizing Visual applications written in C. Use of scripting languages in hardware applications. Using Excel for input-output functions. Must be taken concurrently with MATH 180.

Prerequisites: MATH 180

EET 315 Programmable Instrumentation 3 credits

Instrumentation system design and integration with sensors, actuators and other electronic indicator components. Programming in a block diagram environment and with embedded C to interface different hardware components.

Prerequisites: EE 234 and EE 235 OR EET 254

EET 340 Programmable Hardware Technology 4 credits

Create working programmable hardware using FPGA, GAL and other logic technology. Use industry standard tools such as Verilog, Xilinx, Orcad and Multisim along with development kits and extension boards to implement programmable systems. Interface LED displays, switches and I/O devices with programmable logic to create processing systems. Evolution of programming logic and analog circuits.

Prerequisites: EE 234 and EE 235 or EET 254

EET 341 Electronic Shop Practices 2 credits An introduction to tools, equipment, materials, and techniques used in fabrication of electronic projects and printed circuit boards. Prerequisites: EET 221	EET 455 Power Electronics 3 credits Use of solid-state switching devices in the conversion and control of electrical energy for low power and high power applications such as switched-mode regulated DC power supplies, motor speed control, lighting control, uninterruptible power supplies and HVDC transmission. Prerequisites: EET 222
EET 355 Electrical Power Systems 4 credits Electrical power and magnetic circuit concepts, transformers, generators and motors (DC, synchronous, induction), special purpose motors, power-electronic motor drivers, prime movers/alternatives, generation, transmission/distribution, system stability/protection. Prerequisites: EET 114, MATH 127, PHYS 212	EET 456 Analog Communications 4 credits Communications principles and systems. Practical engineering aspects involved in modulation-demodulation, receivers, transmitters and filters. Also included are radiation and antennas, guided waves, microwaves and microwave systems. Course must be taken concurrently with STAT 221. Prerequisites: EET 223 Corequisites: STAT 221
EET 384 Microprocessors II 4 credits A study of a high-performance microprocessor architecture. Applications of a microprocessor for monitoring and controlling systems will be studied. Optimal utilization of a microprocessor's resources will be stressed. PC programming in assembly and a high-level language. EET 393 Practicum 1-4 credits Elective credit for approved experience in off-campus work related to EET major. Prerequisites: Permission required.	EET 458 Advanced Instrumentation 1 credit Experiences with electronic equipment and instrumentation including maintenance, repair, calibration, safety and component identification. Prerequisites: 25 hours of EET courses, or consent
EET 398 CPT: Co-Operative Experience 0 credits Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information. Prerequisites: EET 223. At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.	EET 461 Industrial Automation I 4 credits Automation components and subsystems involving sensors, transistors, logic, amplifiers, software, microprocessors, PLC's, actuators, encoders, stages, motors, controllers and drives. Students design, simulate, build, test and document automation systems for Capstone projects. Prerequisites: EET 223, EET 384
EET 430 Computer Networking I 4 credits An introduction to the basic foundations of computer networking. The course will encompass telecommunications, local area networks, wide area networks and wireless communication. Topics covered include OSI model, the TCP/IP MODEL, different network topologies and associated hardware, error detection and correction, protocols, and security. Prerequisites: MATH 180, EET 384	EET 462 Industrial Automation II 4 credits Continues building skills in automation components and subsystems involving sensors, transistors, logic, amplifiers, software, microprocessors, PLC's, actuators, encoders, stages, motors, controllers and drives. Students design, simulate, build, test and document automation systems for Capstone projects. Prerequisites: EET 461
EET 431 Computer Networking II 4 credits A continuation of EET 430. Router configurations, advanced LAN topologies, network configurations, protocols, and switching designs. Network troubleshooting and threaded case studies. Prerequisites: EET 430	EET 486 Digital Communications 3 credits An overview of a communication system. Phase Shift Keying. Amplitude Shift Keying and Frequency Shift Keying. Coherent and non-coherent detection. Maximum likelihood receiver and Matched filter. Noise power, Noise figure, and Noise codes and convolution codes. Spread Spectrum Techniques. Prerequisites: STAT 154, EET 456
EET 441 Embedded Systems 4 credits Design and prototyping of embedded systems including both hardware and software components. A variety of hardware, software, sensors and displays will be used depending on the embedded system requirements. Issues related to hardware and software specifications will be studied as well as appropriate documentation standards. Prerequisites: MATH 180, EET 384	EET 487 RF Systems Technology 3 credits Overview of wireless communication and control systems. Characterization and measurement of RF networks. Transmission lines. Antennas. Radio wave propagation. Fading. Smith Chart. RF transistor amplifiers, oscillators and mixer/modulator circuits. Klystrons, magnetrons and TWTs. Spread spectrum techniques. SAW matched filters. Prerequisites: PHYS 212, EET 223
EET 452 Operational Amplifier Applications 3 credits Operational amplifier circuits utilized in filters, sensors, comparators, voltage regulators, device testing, measurement systems, multipliers, phase-locked loops, and A/D converters. Differential amplifier basics. Linear integrated circuit processing. Prerequisites: MATH 127, EET 223	

EET 491 In-Service 1-4 credits
EET 492 Integrated Circuit Technology 4 credits
Semiconductor industry and overview of integrated circuit manufacturing, integrated circuit types, crystal growth and wafer manufacturing, physics of semiconductor materials, detail of major IC fabrication steps, process yield, semiconductor devices and integrated circuit formation, packaging, and semiconductor measurements, introduction to layout tools.

Prerequisites: EET 223

EET 494 Global Experience in Engineering and Technology 1 credit
This class provides students pursuing a minor in “Global Solutions in Engineering and Technology” with an opportunity to explore a set of topics related to achieving success in advance of and following an international experience (internship, study abroad, etc.). Speakers will include faculty, graduate students, visiting researchers and industry members as well as student participants. Returning students will be required to participate in mentoring of students preparing for their international experience and provide written and/or oral presentations of various topics during the semester. This course is required both before and after participation in the international experience (min. 2 cr.)

EET 497 Internship 1-6 credits
Should be taken at end of junior year. Permission required. Pre: 40 hours EET credits or written permission from program coordinator.

EET 498 Topics 1-4 credits
Varied topics in Electronic and Computer Engineering Technology. May be repeated as topics change.

Prerequisites: to be determined by course topic

EET 499 Individual Study 1-4 credits

Elementary and Literacy Education

ELE 215 Introduction to Education and Instruction 4 credits
This course explores the historical foundations of education and the impact they have had on inequitable opportunities, experiences, and outcomes for learners. Students in this course will gain an understanding of educational principles relevant to the physical, social, emotional, moral and cognitive development of children. The roles and responsibilities of teachers, schools, and students will be examined within a field experience.

ELE 222W Human Relations in a Multicultural Society 4 credits
This course provides education in self-awareness and skills that are essential for living and working in a democratic and socially just society. The course addresses issues of oppression and social justice related to race/ethnicity, gender, age, class, religion, disability, physical appearance, sexual orientation, and nationality. The course addresses groups that have historically been excluded from western power and decision-making. Participants will examine mainstream and alternative viewpoints for values, validity, and outcomes using investigative and critical thinking skills. Diverse Cultures: Gold

ELE 240 Research 1-4 credits
To research an area related to education to provide understanding and experience with scholarly inquiry. Students will discover content and practice skills related to scholarly inquiry and their academic subjects.

ELE 310 Philosophy & Practices in the Middle School 3 credits
The middle school concept, curriculum, and teaching methods.

ELE 402 Introduction to Teaching Multilingual Children 3 credits
For teachers of students whose dominant language is other than English.

ELE 410 Creating Anti-Racist Environments with Field Experience 4 credits
Teacher candidates will think critically about the context in which all students learn and will learn about historical and current patterns of inequitable education that marginalize students who have been minoritized according to race, culture, language, or ability. The course will focus on research-based practices that teacher candidates can use to create identity-safe classrooms and how they can work with families and communities using an asset lens.

Prerequisites: Admission to Professional Education and the Elementary Education program.

ELE 411 Evidence-Based Literacy Instruction in the Early Grades 4 credits
In this course students learn to use a variety of developmentally appropriate, evidence-based instructional practices and assessments to disrupt predictable patterns of achievement and to advance children's: oral and written language, phonemic awareness, phonics, and concepts about print. Additionally, the interdependent nature of reading, writing, listening, and speaking, stages of spelling development, and role of vocabulary and fluency in comprehension are addressed.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 412 Social Studies: Human Diversity, Power, & Opportunity in Elementary School 4 credits
This course is designed to prepare teacher candidates with the understanding and application of concepts related to human diversity and interactions, structures of power, the identity of individuals and communities, and explicitly connects social studies concepts with their influence on educational experiences of diverse learners.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 413 Understanding the Needs of Individual Students 4 credits
This course introduces elementary teacher candidates to areas of exceptionality in learning. Teacher candidates within the course will analyze elementary instruction within the general education classroom and learn to develop antiracist instruction that builds on students' assets and cultural capital with consideration of individual differences.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 420 Planning & Assessment for Diverse Learners with Field Experience 4 credits
The focus of this course will be providing teacher candidates with strategies and tools in providing daily instruction for diverse learners in terms of race, gender, ethnicity, nationality, language, religion, sexuality, social economic status and class. The course will focus on learners with complex and multiple disabilities that requires a variety of materials, strategies, and differentiation. The teacher candidates will have an opportunity to implement their plans in the classroom during field experience while closely working with a classroom mentor teacher and university mentor.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 421 Integrating Critical Literacies to Promote Equity Across the Elem Curriculum 4 credits

This course will engage teacher candidates in critically analyzing children's texts. Teacher candidates will learn how to integrate diverse literature across the elementary curriculum and meet objectives and standards in math, literacy, social studies, science, and the arts. Teacher candidates will learn how to guide students in developing their literacy identities in order to promote reading engagement and students as independent and collaborative readers.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 422 Mathematics Teaching and Learning for the Diverse Elementary Classroom 4 credits

This course is centered around three goals to help prepare teacher candidates to enact practices that develop learners' mathematical proficiency. The first goal is to explicitly teach skills for disrupting patterns of injustices and inequities that often get reproduced within the context of elementary mathematics classrooms. The second goal is to develop professional skills for the high-leverage practices of eliciting and interpreting students' thinking and leading a group discussion. The third goal is to gain the mathematical knowledge needed for engaging learners in inquiry-based instruction for number sense & operations, place value, computation, and rational number concepts in grades K-6.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 423 Science Teaching and Learning for the Diverse Elementary Classroom 4 credits

Elementary teachers must know and understand the fundamental concepts and practices in physical, life, earth and space sciences, as well as how technology, engineering, and math are integrated into this subject matter, in order to plan and implement meaningful and engaging inquiry learning experiences for students. This course will provide a foundation across all science domains through a hands-on, inquiry-based approach that will introduce teaching strategies that allows science to be accessible for all learners. This course provides the necessary content knowledge, pedagogical methods, and resource materials for teacher candidates to develop effective science instruction in the elementary classroom.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 428 Teaching Reading and Writing in the Content Areas 3 credits
Presents strategies for teaching reading and writing knowledge, attitudes and skills in the various teaching content areas.

ELE 430W Integrating Arts & Physical Health Across the Elementary Curriculum 4 credits

This course will explore the integration of the arts, physical, and health education into the elementary curriculum to enhance student learning; support children's creative expression, self-esteem, and emphasize fine and gross motor development. Practical strategies to promote healthy physical and emotional well-being will be explored. This is designated a writing intensive course.

ELE 431 Integrating Inquiry across the Elementary Curriculum 4 credits

This course will explore practical information, assessment tools, instructional ideas and activities for effective implementation of an inquiry-based approach in elementary curriculum. Teacher candidates will focus on developing inquiry-based methods and strategies on improving students learning outcomes while linking one or more elementary content areas in a progressive way.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 432 Field Experience: Integrating Methods in the Elementary Classroom 4 credits

This course is intended to provide a co-teaching mentorship between the teacher candidate and mentor teacher. Teacher candidates will use this semester to focus on co-teaching, and establishing a relationship with the district, school, and classroom environment. Candidates are expected to develop and demonstrate, through performance assessment, integrated knowledge, skills, and dispositions needed to become committed professionals in education.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 433 Integrating Inclusive Practices to Promote Learners' Diverse Development 4 credits

This course focuses on teacher candidates' integration and reflection of inclusive and effective elementary teaching practices that they have learned throughout the program. Using the context in which their student teaching will occur, including district, school, and classroom demographics, curriculum and assessment, they will plan literacy instruction and assessment across content areas throughout the program. Teacher candidates will apply differentiation strategies and anti-racist pedagogy to address all learners' needs and promote their development and engagement in the classroom.

ELE 436 Engineering for Elementary Teachers 2 credits

This course provides hands-on experiences through which students learn the basics of engineering. Topics include the engineering design process, reverse engineering, and engineering fields/professions. The course focuses on the engineering strand of the K-6 Minnesota State Science Standards.

ELE 440 Student Teaching 12 credits

Student teaching is the capstone field experience for the teacher education programs at Minnesota State University, Mankato. The purpose of the experience is to provide an opportunity for Teacher Candidates to experience fully the role of the professional educator and demonstrate their ability to successfully enter the induction phase of teaching. The Teacher Candidate uses this opportunity to produce evidence of their teaching competency in four domains: planning and preparation, the classroom environment, instruction, and professional responsibilities.

Prerequisites: Admission into Professional Education and the Elementary Education program

ELE 446 Educational Technology-STEM 2 credits

Elementary education teacher candidates will study the technology skills needed in order to become effective STEM teachers.

ELE 451 Middle level practicum **1-2 credits**

The practicum consists of a minimum of four weeks during which candidates teach in the specific academic subject for the new licensure field. Those holding a license at the elementary level complete the experience with students in grades 7 or 8. Those who hold a license at the secondary level complete the experience with students in grades 5 or 6. The focus is on applying the standards of effective practice in teaching students, demonstrating both knowledge of the academic subject and students as well as the pedagogical skills required at the middle level.

ELE 456 Special Topics: STEM for Elementary Teachers **1 credit**

This course provides students with familiarity in regard to emerging topics of importance in elementary STEM education.

ELE 467 Integrating Science, Technology, Engineering, and Math for Elem Teachers **2 credits**

In this pedagogy course, elementary teachers will learn to integrate the four disciplines of STEM; science, technology, engineering, and math.

ELE 470 Field Experience in STEM **4 credits**

Field experience focusing on the struggling reader and instruction in an integrated approach to teaching science, technology, engineering, and math (STEM).

ELE 494 Student Teaching Middle School **4 credits**

Student teaching in a second content area for a full-day, half-semester, in a middle school setting. For elementary students; student teaching in middle school.

ELE 496 Internship **3-6 credits**

Provides clinical experiences for pre-service teachers; extends laboratory experiences for those who have completed pre-student teaching experiences.

ELE 499 Individual Study **1-4 credits**

By contract between student and faculty member.

English

ENG 100 Academic Reading and Writing **4 credits**

ENG 100 or "Academic Reading and Writing" focuses on building students' literacy skills in connection to their field of study.

ENG 101 Foundations of Writing & Rhetoric **4 credits**

Students in this course approach writing as a subject of study by investigating how writing works across a variety of contexts.

ENG 105 Race, Rhetoric, and Representation **4 credits**

This course examines structural racism and other forms of intersectional oppression in the United States. Students will study unequal power dynamics and analyze implicit and explicit biases. Students will also identify essential skills necessary for living and working in a diverse society with historic and ongoing exclusion. Diverse Cultures: Purple

ENG 110 Introduction to Literature **4 credits**

Study and analysis of elements of prose, poetry and drama in English from earlier periods through contemporary. Emphasizes critical reading of literature. May include such genres as short story, novel, memoir, nonfiction, biography, autobiography, poem, play, screenplay.

ENG 112W Why Literature Matters **4 credits**

Study and analysis of prose, poetry, drama, and film from various genres, time periods, and geographies. Emphasizes critical reading of and writing about literature.

Prerequisites: ENG 101

ENG 125 International Children's Literature **4 credits**

The course purpose is to increase students' knowledge of international children's literature that is written in English or translated into English. Students will be introduced to individual books, authors, and methods of responding to literature. This course studies children's literature set in countries such as Afghanistan, WWII Germany, and the Dominican Republic. Diverse Cultures: Purple

ENG 146 Introduction to Shakespeare **4 credits**

This course will introduce students to Shakespeare's plays (histories, tragedies, and comedies) and sonnets. Students will read, analyze, and develop interpretations of these works, learning about Shakespeare's language, historical situations, and world views.

ENG 201W Writing Technologies **4 credits**

Students analyze and apply rhetorical principles in their writing with "new media." As members of a media-saturated culture, we know that print text is only one form of writing, and sometimes it is not the most effective choice. Because all of us make sense of texts and issues in a variety of ways, this course asks students to utilize multimodal (visual, aural, etc.) forms of communication and become more informed, critical consumers of new media writing themselves.

Prerequisites: ENG 101

ENG 211W Literature and Human Diversity **4 credits**

Courses will explore literary representations of, and literary contributions made by, under-represented peoples. Students will develop critical thinking, reading, and writing skills, and increased appreciation of the diversity of human experience. Potential topics include: Multi-Ethnic Literature, Literature and Disability. May be repeated as topics change. Diverse Cultures: Purple

Prerequisites: ENG 101

ENG 212W World Literature **4 credits**

Courses will introduce students to works of literature from a variety of world cultures. Designed to increase knowledge of world cultures and appreciation and understanding of cultural differences in representation, and in seeing, believing, and being. Emphasizes critical thinking, reading, and writing. May be repeated with different topics.

Prerequisites: ENG 101

ENG 213W Literature and Ethics **4 credits**

Courses will focus on some characteristic ways in which literature addresses and explores the ethical dimensions of human society and the relationships between works and their cultural contexts. Emphasizes critical thinking, reading and writing. May be repeated as topics change.

Prerequisites: ENG 101

ENG 214 Environmental Humanities **4 credits**

The arts and humanities play an important role in our shared challenge of forging an environmentally better future. Poets, filmmakers, photographers, and artists make important environmental interventions. This course explores the emergence of environmental thinking and its development in art, literature, history, philosophy, theology, music, theater, film, and many other areas of the arts and humanities. Topics may include urbanization, land use, environmental politics, human/nonhuman relations, disaster capitalism, environmental fiction, the Anthropocene, global environmental justice, energy, and climate change. Diverse Cultures: Purple

ENG 215 Topics in Literature **2-4 credits**

Course will explore specialized topics in literature; may be repeated under a different topic.

ENG 271W Technical Communication 4 credits

Introduction to learning the written and oral communication of technical information. Assignments include writing and presenting proposals, reports, and documentation. Emphasis on use of rhetorical analysis, computer applications, collaborative writing, and usability testing to complete technical communication tasks in the workplace.

Prerequisites: ENG 101

ENG 272W Business Communication 4 credits

Introduction to business communication. Assignments include writing and presenting proposals, reports, and documentation typical to a business/industry setting. Emphasis on use of rhetorical analysis, software applications, collaboration, and usability testing to complete business communication tasks. Fall, Spring

ENG 273W Agricultural Communication 4 credits

Introduction to written and visual communication of technical information in agricultural contexts. Through rhetorical analysis, collaborative and independent writing, and usability testing, students will learn strategies to produce clear, concise, accurate, and effective documents and presentations.

ENG 275W Introduction to Literary Studies 4 credits

An introduction to literary genres and to the techniques of writing about literature.

Prerequisites: ENG 101

ENG 285 Practical Grammar 2 credits

A review of traditional grammar designed to prepare students for advanced work in language and grammar. This course will run for a half-semester.

ENG 301W Advanced Writing 4 credits

Expressive expository and argumentative writing. For anyone interested in developing advanced rhetorical skills such as invention, arrangement, and style in discourse. Especially recommended for students who plan to write as part of their careers or pursue graduate study.

Prerequisites: ENG 101 and permission of instructor

ENG 316 Topics in Literature 1-4 credits

Topic-oriented course in literature. May be repeated with change of topic.

ENG 317 Literature & the Environment 4 credits

This course examines how literary texts engage with and represent the natural world and humanity's place in it. It studies literature from various time periods, genres, and geographical locations to explore topics such as climate change, sustainability, environmental ethics, human/nonhuman relations, and ecology. Possible course topics might include "Latinx Environmentalisms," "Eco-Disaster Fiction," "Global Environmental Justice," and "Victorian Environments."

ENG 318 Multicultural Literature 2-4 credits

Specific topics in multicultural literature with detailed study of a particular period, region, or group in the United States and their contributions to a diverse literature. Topics include African American Literature, American Indian Literature, Southern Writers of Color, and others. May be repeated as topics change. Diverse Cultures: Purple

ENG 319 Animals and Literature 4 credits

"Animals and Literature" is a required class for the Human-Animal Studies minor. The course examines literature focusing on animals from various time periods, genres, and geographical locations. By analyzing the role of animals in various literary texts, students will develop a greater understanding of human-animal interactions and relationships, will be exposed to ethical issues surrounding human-animal relationships, and will understand and engage in theoretical issues central to Human-Animal Studies. Topics may vary and the course can be repeated with change in content. Diverse Cultures: Purple

ENG 322 Topics in British Literature 4 credits

Topics in British literature covering various periods, literary movements, and themes. The course will study works of fiction, poetry, and drama, and their historical and cultural contexts. Potential topics include Victorian Literature & Art, Gothic Literature, British Colonial & Post-Colonial Literature, Performing Identity in Early Drama, Monsters and Magic, and others. This course may be repeated with change of topic.

ENG 323 Topics in US Literature 4 credits

This topics course examines some of the major developments in US literature. In reading a variety of canonical and noncanonical works, students will develop a greater understanding of US literature within specific sociocultural transformations and attendant literary movements. The course may be taught thematically, with possible topics including postcolonialism, environmental studies, immigration, and popular culture. May be repeated with change of topic.

ENG 325 Children's Literature 3 credits

Introduction to authors, genres, illustrations, and works of literature published for elementary age children. Current and classic works.

ENG 361 Teaching English: Literature, Grades 5-12 4 credits

Theory, practice, and materials for teaching English language arts in middle school and high school, with particular attention to literature.

ENG 362 Teaching English: Writing, Grades 5-12 4 credits

Theory, practice, and materials for teaching English language arts in middle school and high school, with particular attention to language and writing.

ENG 381 Introduction to English Linguistics 4 credits

The English language considered structurally (phonology, morphology, syntax, semantics) and sociolinguistically (geographical and social dialects, gender issues, acquisition of first and second language, standard and nonstandard forms).

ENG 385 Introduction to Sociolinguistics 4 credits

This course introduces students to sociolinguistics with some specific focus on the role of culture and language in education. Topics of study focus on diverse student populations in American schools, particularly language learners. The course examines the interaction between language(s) and culture and helps students explore how individuals are members of many communities and are influenced by a host of different cultural markers, such as language, race, ethnicity, regionalism, social class, gender, and other differences.

ENG 401 (4.00) Topics in Writing Studies 4 credits

Students will examine a current area of interest in the field of Writing Studies, including the topic's theoretical, scholarly, and pedagogical implications for writing and/or the teaching of writing. This course can be repeated for credit as the topic changes each time it is offered.

ENG 402W Gender in Literature 4 credits

Selected topics course on literature about gender and gendered experiences Diverse Cultures: Purple

ENG 403W Selected Authors 4 credits Studies in selected authors. Specific authors change. May be repeated with content changes.	ENG 438W African American Literature 4 credits This writing-intensive course surveys the earliest African American literary works, including slave narratives, poetry, folklore, and oration, through 20th century movements such as the Jazz Age, Harlem Renaissance, and Black Arts Movement of the 1960s, to contemporary works and authors. Diverse Cultures: Purple
ENG 407 Shakespeare 4 credits This course examines Shakespeare's poetry and dramatic works within their social and historical context. The plays will be considered as both literary texts and dramatic performances.	ENG 441 Literary Theory and Criticism 4 credits Theories of literature and its production and use. Prerequisites: 6 semester credits in literature
ENG 410 21st Century Literature 1-4 credits Study of literature from the 21st century, with an emphasis on how these works reflect contemporary concerns. Prerequisites: ENG 275W	ENG 455 Advanced Writing Workshop 4 credits Advanced interdisciplinary writing emphasizes critical reading and thinking, argumentative writing, library research, and documentation of sources in an academic setting. Practice and study of selected rhetorics of inquiry employed in academic disciplines preparing students for different systems of writing. Prerequisites: ENG 201W, ENG 301W
ENG 412W Arab American Literature 4 credits This course critically examines a wide array of literature, non-fiction essays and articles, film and art to explore the historical experiences of diverse Arab American communities. The course will begin by discussing major issues in the field, the history of immigration and citizenship, and developments in Arab American writing. Students will learn about waves of immigration from the 1880s onward, the literary communities that formed, and their contemporary legacy. The course will enable the students to better comprehend the historical and cultural contexts in which Arab American literature has evolved and the diverse perspectives of individual writers and artists. Diverse Cultures: Purple	ENG 461 World Literature for Children and Young Adults 2-4 credits Selected works of literature for students in grades 5-12 from a variety of countries and cultures.
ENG 425 Topics in Children's Literature 2-4 credits Topics have included genres such as fantasy or historical fiction and thematic topics such as survival or journeys. May be repeated for credit when the topic changes.	ENG 463 Adolescent Literature 3 credits A survey of literature for students in grades 5-12, fiction, and non-fiction, and methods of teaching this literature.
ENG 426 Selected Periods 2-4 credits Selected periods of literary study.	ENG 464 Teaching Literature in the Middle School 3 credits Survey of books suitable for the Middle School classroom, covering a variety of topics and genres.
ENG 430 Independent Reading 1-4 credits Extensive reading in an area for which the student has had basic preparation. Prerequisites: Consent	ENG 466 Usability 4 credits Introduces students to theories of usability and teaches students various methods to evaluate design for usability including heuristic evaluations, card-sorting, task-based evaluations, and fieldwork. Prerequisites: ENG 271W or ENG 272W
ENG 433W Selected Studies in World Literature 4 credits Topics on themes, issues, and developments in genres of the literatures of the world. Content changes. May be repeated. Diverse Cultures: Purple	ENG 467 International Technical Communication 1-4 credits Students learn how to research and write technical information for multiple cultures, both locally and internationally.
ENG 435 The World Novel 2-4 credits A study of selected novels from a variety of time periods and cultures, including Eastern and Western Europe, Asia, Africa, and Latin America.	ENG 469 Project Management in Technical Communication 4 credits This course is designed to introduce students to technical project management. This introduction is achieved through participation in a simulated project management experience. Assignments include standard documentation associated with project management and reflective writing. Fall, Spring Prerequisites: ENG 271W
ENG 436W Native American Literature 4 credits This writing-intensive course surveys the earliest Native American literary works, from oral tradition and songs to contemporary works and authors, with a particular emphasis on tribal and cultural contexts that identify these works as Native American. Diverse Cultures: Purple	ENG 470 Independent Writing 1-4 credits Writing in an area and of a type for which the student has demonstrated ability. May be repeated. Prerequisites: Consent
ENG 437W Latina/o Literature 2-4 credits This course surveys the origins and development of Chicana/o and Latina/o literature, from oral narratives, early poetry, and narrative fiction and memoirs, through the Chicano Movement and the emergence of Chicana/o literature and drama. The course also examines contemporary Chicana/o and Latina/o narrative fiction, including issues related to immigration, the urban experience, Chicana/o and Latina/o subjectivity, and the reappropriation and reinterpretation of myths, legends, and cultural figures in transnational context. Diverse Cultures: Purple	ENG 471 Visual Technical Communication 4 credits This course provides analysis and training focused on concepts and practices of visual design as they relate to technical and professional communication.
	ENG 472 Topics in Technical Communication 1-4 credits Overview of technical communication theory with emphasis on contemporary approaches. Hands-on workshop which implements the theories discussed.

ENG 473 Desktop Publishing **4 credits**
Brief history of publishing and typography, conventions of desktop publishing, and hardware and software application tools for desktop publishing. Students need not have prior experience with DTP, but some word processing and microcomputer experience will be helpful.

ENG 474W Research and Writing Technical Reports **4 credits**
Practice in writing various types of reports for a variety of purposes and audiences. Includes primary and secondary research methods, and data analysis of information to be used in reports.

Prerequisites: ENG 271W or ENG 272W

ENG 475 Editing Technical Publications **4 credits**
Editing the content, organization, format, style, and mechanics of documents; managing the production cycle of documents; and discovering and learning computer and software applications for technical editing tasks.

ENG 477W Technical Documentation, Policies, and Procedures **4 credits**
Creating both online and print documentation for products, with emphasis on computer software and hardware documentation for users. Attention also to policies and procedures as written for a range of uses (e.g., employee handbooks, manufacturing processes, usability testing).

ENG 478 Technical and Scientific Literature **4 credits**
Reading and analysis of stories, novels, poems, essays, and nonfiction accounts that deal with scientific and technological topics. Focus on the role of technology in communication forms and tools.

ENG 479 Rhetorical Theory Applied to Technical Documents **4 credits**
Overview of prominent rhetorical theories, from classical to contemporary, which are applicable to technical communication. Practical application and implications of the theories emphasized. Additional attention given to current issues such as risk communication and ethics.

ENG 480 Proposals **4 credits**
Practice in the development and production of proposals, focusing on the researching, writing, and management of proposals by technical communicators.

ENG 481 History of the English Language **4 credits**
The development of English from its origins as a dialect of Proto-Indo-European to its current form, with consideration of its social history as well as its formal development.

ENG 482 Teaching Listening and Speaking to English Learners **4 credits**
Introduction to theory and best practices of teaching second language listening and speaking to a variety of English learners in multiple contexts.

ENG 483 Writing About Health and Medicine **4 credits**
This course addresses the skills required for technical communication within the context of health and medicine. Students will discuss typical audiences, purposes, and genres of health and medical communication. Students will adapt complex health and medical information for audiences with varying levels of knowledge, demonstrating awareness of audience analysis, visual design, plain language, and ethics.

ENG 484 Teaching Grammar and Vocabulary to English Learners **4 credits**
Introduction to theory and best practices of teaching second language grammar and vocabulary to a variety of English learners in multiple contexts - specifically focusing on content-based teaching practices.

ENG 486 Theories of Second Language Teaching and Learning **4 credits**
Introduction to theories and classroom practices that have shaped second language teaching and learning. Topics of study focus on prominent second language learning/acquisition theories, individual and sociocultural factors in language learning, technology-based resources that enhance language learning, as well as practical issues and applications of theory in a wide range of instructional contexts.

ENG 487 Teaching Reading and Writing to English Learners **4 credits**
Introduction to theory and best practices of teaching second language reading and writing to a variety of English learners in multiple contexts.

ENG 489 Policies, Programs, and Assessment for K-12 English Learners **4 credits**
This course explores state and federal legislation affecting EL programs, current models of EL program delivery, and Minnesota State Standards and standardized testing. Additionally, the course develops the ability to understand the needs of and communicate with students, families, and program members within the context of their environments such as school, family, and community.

ENG 491 Teaching Language & Language Learners in the Inclusive Elementary Classroom **4 credits**
In this course, teacher candidates will deepen their knowledge of both the English language and the instructional and assessment strategies effective for meeting the linguistic needs of multilingual/multidialectal learners, while enhancing the learning of all students. Teacher candidates will investigate the functions of phonology, lexis, grammar, and discourse used for listening, speaking, reading, and writing within K-6 classrooms. Teacher candidates will analyze classroom and academic content-area language, identify those linguistic structures needed to access and utilize subject-area content, employ effective strategies for teaching to the varying academic-language needs of their learners, and develop lessons integrating language and content across disciplines.

ENG 492 Selected Topics **2-4 credits**
Various topic-oriented courses in literature.

ENG 494 English Workshop **1-6 credits**
Specialized workshops in topics such as computer-assisted writing, teaching the writing of poetry in the secondary school, or discipline-specific writing. May be repeated with change in topic. When offered as a creative writing workshop, the course may fulfill a workshop requirement.

ENG 496 Senior Seminar in English Studies **4 credits**
Course in which English Studies majors will synthesize, evaluate, and reflect upon coursework and prepare portfolios connecting their work to program outcomes. Must be taken during the last year in the major.

ENG 498 Internship **1-6 credits**
On-site field experience, the nature of which is determined by the specific needs of the student's program option. May be repeated with change in topic.

ENG 499 Individual Study **1-4 credits**
Extensive reading and writing in an area for which the student has had basic preparation. May be repeated with change in topic.

Prerequisites: Consent

Environmental Sciences

ENVR 101 Perspectives in Environmental Science 4 credits

This course is designed to introduce students to the complex field of environmental science. Reading assignments, lectures, discussions and other class assignments will introduce students to the structure and functions of ecosystems, the concept of sustainability, issues in environmental protection with an emphasis on global commons, the interrelationships between environment, culture, government and economics and what individuals or groups can do to influence environmental policy/rules.

ENVR 440 Environmental Regulations 3 credits

This is a lecture course introducing students to major federal environmental laws and regulations. Discussions include the cause(s) that prompted the enactment of various environmental legislation as well as intent and implementation of the legislation. Both Federal and State of MN environmental statutes will be discussed.

ENVR 450 Environmental Pollution & Control 3 credits

This is a lecture course that introduces students to sources and controls for pollutants in air, water, and soils including hazardous waste. Chemical and biological mechanisms that are important in nature and used to control/treat various types of pollutants are emphasized. Strongly recommended that this course be taken immediately after completing 1 year of Chemistry.

Prerequisites: 1 year CHEM

ENVR 460 Analysis of Pollutants 4 credits

The purpose of this lecture/lab class is to introduce students to standard practices and procedures used in sampling and analysis of environmental matrices and to develop an environmental research project. Standard quality control/quality assurance procedures per EPA are emphasized.

ENVR 470 Environmental Assessment 3 credits

Introduces students to National Environmental Policy Act and requirements for Environmental Impact Statements and Environmental Assessment Worksheets. Phase I Environmental Assessment of land and buildings, an international perspective on environmental assessments, and economic and social impact assessment are discussed.

Prerequisites: ENVR 440

ENVR 480 Senior Research 1-6 credits

Participate in an independent research project with advisory support and with a focus on the student's career objectives.

ENVR 498 Internship 1-6 credits

Only three credits can be counted toward major. Experience in applied Environmental Sciences according to a prearranged training program.

ENVR 499 Individual Study 1-6 credits

Individual Research Project.

Ethnic Studies

ETHN 100 American Racial Minorities 3 credits

A study of American racial/ethnic minorities, especially the histories of Native Americans, African Americans, Hispanic Americans, and Asian Americans. Their roles and contributions to American society will be emphasized. Diverse Cultures: Purple

ETHN 101 Introduction to Multicultural & Ethnic Studies 3 credits

This course introduces students to multicultural and ethnic knowledge and values in and outside the United States. Students are exposed to such issues as race, culture, ethnicity, dominance, immigration, stereotypes, discrimination, and intergroup relations through interdisciplinary approaches—anthropological, economic, historical, political, psychological and/or sociological. Diverse Cultures: Purple

ETHN 150 Multi-Cultural/Ethnic Experience 3 credits

Students will participate in field trips, activities, and guest discussions that will enable them to interact with people ethnically (race, religion, lifestyle, etc.) different from the students, to understand their perspectives and to appreciate their unique experiences and/or contributions to the U.S. pluralistic society. Students are expected to learn actively in and outside the classroom by experiencing events or people from diverse cultural groups. Diverse Cultures: Gold

ETHN 200 Interracial/Interethnic Dating/Marriage 3 credits

This course deals with the history of interracial/interethnic and intergroup (sex, age, religion, etc.) dating and marriage in the U.S. It will explore dating patterns, mate selection theories and impacts on multi-racial children in the area of identity and adjustment.

ETHN 201W Perspectives on African Americans 3 credits

This course will explore the historical, social, political, and cultural experience of African Americans. It will also examine the contributions of African Americans to the growth and development of the United States. Diverse Cultures: Purple

ETHN 203W Perspectives on Asian Americans 3 credits

Introduction to the history and cultures of the major Asian American ethnic groups with a comparative approach to their similarities and differences. Diverse Cultures: Purple

ETHN 204W Perspectives on Latinos/Hispanics 3 credits

A survey of the history and present status of Hispanics/Latinos in the United States from 1848. Emphasis will be on culture, history, and socio-political patterns. Diverse Cultures: Purple

ETHN 220W Civil Rights in the U.S. 3 credits

This course will focus on the struggle for civil rights by diverse groups in the United States. Emphasis will be on how these struggles have impacted their communities and cultural pluralism in the U.S. Diverse Cultures: Purple

ETHN 295 Selected Topics 1-4 credits

The course is offered according to student demand and instructor availability/expertise. A variety of topics related to ethnic and cultural areas will provide curriculum enrichment on an ongoing, but irregular basis.

ETHN 296 Workshop 1-3 credits

Courses will employ changing topics from year to year and will deal with cogent issues of current interest to ethnic and minority communities.

ETHN 299 Individual Study **1-3 credits**
Exploratory independent study and research. Areas of interest not addressed in regular courses are given priority. Maximum three credits toward the major; one credit toward the minor.

Prerequisites: Two other ETHN courses.

ETHN 310 Environmental Racism **3 credits**
The course introduces students to the historical and theoretical foundations of environmental racism and inequality. Therefore, students will explore the social, industrial, and government forces that create inequitable burdens of environmental pollution across communities as well as social movements to reduce such burdens. While a majority of the course focuses on the United States, readings include case studies from around the world.

ETHN 330 Immigration and Ethnicity **3 credits**
Examines the history, identity, conflict and ethnic relations related to immigration as explored from an Ethnic Studies perspective as well as from American and global perspectives.

ETHN 380 Perspectives on Multiracial Identities in the United States **3 credits**
This course examines the economic, social and political factors that affect the identities, rights and social perceptions of multiracial individuals. The social changes resulting from the 1960s Civil Rights Movement played an important role in reducing the social distance between people of different racial/ethnic backgrounds. As a result, contributing to the rising multiracial population. According to the U.S. Census conducted in 2010, over nine million individuals reported belonging to two or more races.

ETHN 400 Cultural Pluralism **3 credits**
This course will examine issues confronted in a multicultural society. It will study ethnic/minority groups not usually included in mainstream society, including their uniqueness and harmonious coexistence with other ethnic groups.

ETHN 401 Applied Cultural Research **3 credits**
This course introduces concepts and methods of applying socio-cultural understanding to contemporary problems to bring about the empowerment of affected people. Case/field studies and other research methods in social sciences will be used to illustrate the impact and problems of cultural change with special attention to its affect on disadvantaged groups of people. Students will also design their own applied projects. Diverse Cultures: Gold

Prerequisites: ANTH 101, ANTH 230 or consent; ETHN 100, ETHN 101 or ETHN 150 or consent

ETHN 402W Ethnic Research Methods/Skills **3 credits**
This is a comprehensive course, which introduces students to qualitative, quantitative and evaluation social research methods. It provides students with hands-on experience of collecting and analyzing data, from any given diverse ethnic community through participant observation and needs assessment. Diverse Cultures: Gold

Prerequisites: ETHN 100 or ETHN 101 or ETHN 150, or Consent

ETHN 405 Perspectives on New Immigrants **3 credits**
The purpose of this course is to examine the challenges and opportunities of the new immigrants, refugees, families, and specifically their children, in the United States.

ETHN 410 Foundations of Oppression **3 credits**
Students will examine the forces which create and maintain prejudice, discrimination and racism within global perspectives. Special attention will be given to the work of Paulo Freire. Diverse Cultures: Purple

Prerequisites: ETHN 100 or ATHN 400

ETHN 420 African American Studies **3 credits**
This course will provide students with an in-depth examination of the issues affecting present-day Africans, and those of the Black Diaspora. Possible topics are fair representation in the media, education, cross-cultural interactions, economics, politics/law, and racial identity.

Prerequisites: ETHN 110 or ETHN 400 or consent

ETHN 440 Asian American Studies **3 credits**
Examination of current issues affecting the status of Asian Americans. The focus of this course will vary to reflect students' interests in the area of politics, education, economics, social and/or cultural dealing with Asian Americans.

Prerequisites: ETHN 400, or consent

ETHN 450 Latino/Hispanic Studies **3 credits**
Thematic examination of major issues surrounding Latino/Hispanic communities in the United States. Emphasis will be on education, labor, politics, social welfare and migration.

Prerequisites: ETHN 400, or consent

ETHN 460 Urban Minority Problems **3 credits**
This course is concerned with racial/ethnic minorities who live in large urban (inner city) areas. It is especially concerned with the roles that culture and discrimination play in the shaping of America's ghettos, barrios, reservations, and Chinatowns. Diverse Cultures: Purple

ETHN 470 Women of Color **3 credits**
Examines the effects of sexism and racism on women of color and provides an understanding of the significant contributions they have made in their struggle against oppression. Diverse Cultures: Purple

Prerequisites: ETHN 400, or consent

ETHN 482 African American Civil Rights Movement **3 credits**
This course will take an interdisciplinary ethnic studies approach to examine the past, present and future implications of the African American civil rights movement on race relations in the United States.

ETHN 486 Racial and Ethnic Politics **3 credits**
The course examines racial and ethnic minorities, and the mutual influences between these groups and the structures, procedures and issues of US politics. Major topics include: opinion on racial issues, the representation of minorities in elective and appointive offices, and the nature of value conflicts underlying contemporary racial issues, including affirmative action, immigration, welfare, language policies and Native American tribal issues. Diverse Cultures: Purple

ETHN 490 Racial/Ethnic Families in the U.S. **3 credits**
This course will examine the different definitions of "family" through time in the United States. It will focus on changes in the African, Native, Hispanic/Latino, and Asian-American families. It will compare and contrast differences and similarities among ethnic minority families as well as between them and white ethnic families.

Prerequisites: ETHN 400, or consent

ETHN 495 Selected Topics **3 credits**
Multiple perspectives on the selected topic(s) will be addressed. Student scholars may contribute to the selection and/or refinement of the topic(s). Highly motivated seniors will join with graduate students in a graduate-type seminar.

Prerequisites: ETHN major

ETHN 496 Workshop **1-3 credits**
Courses will employ changing topics from year to year and deal with cogent issues of current interest to one or more minority communities.

ETHN 497 Internship **1-10 credits**
Supervised, scholarly experience to which the theories and methodologies of ethnic studies can be applied. Opportunities may be on-campus and/or off-campus, including work in other countries.

Prerequisites: ETHN major or minor

ETHN 498 College Teaching Internship **1-6 credits**
Students assist a faculty member in teaching ETHN 100 or ETHN 101.

ETHN 499 Individual Study **1-3 credits**
Advanced independent study and research. Maximum of three credits toward the major; one credit toward the minor.

Prerequisites: 2 ETHN courses at 300/400 level

Experiential Education

EXED 202 Introduction to Experiential Education **3 credits**
This course introduces foundations of experiential education through direct experience with various applications connected through reflection and group processing. Course topics include, but are not limited to, project-based learning, service learning, adventure education, ethics in leadership, and wilderness experience. Fall, Spring

EXED 490 Workshop **1-3 credits**
EXED 499 Individual Study **1-3 credits**

Family Consumer Science

FCS 100 Personal & Family Living **3 credits**
This course emphasizes cognitive, emotional, and social development within our diverse society. Multi-generational local and national-level underrepresented/diverse family forms and practices are highlighted, relating to inter/intrapersonal communication, conflict resolution, mate selection, marriage/family dynamics, sexual development, family strengths, stress and crisis, parenting, decision-making, parent-child relationships, and the balancing act of family and work. As an introductory level course, no prerequisite knowledge is required. Diverse Cultures: Purple

FCS 101 Introduction to Family Consumer Science **3 credits**
An overview of the scope of family consumer sciences and the career potentials of the profession.

FCS 120 Clothing and People **3 credits**
Relationship of clothing to people from cultural, social, psychological, economic and aesthetic perspectives. Diverse Cultures: Purple

FCS 140 Introduction to Nutrition **3 credits**
An introductory nutrition class which emphasizes the scientific method and natural science principles from biochemistry, physiology, chemistry, and other sciences to explain the relationships between food and its use by the human body for energy, regulation, structure, and optimal health. GE-3 non-lab

FCS 150 Cooking and Culture **3 credits**
Introduces students to basic food science, food preparation and culinary techniques. The course is taught from the lens of different global cultures and the roles of individuals and nations in a global context using food habits as a model. Foods from around the world are prepared by students to develop culinary skills.

FCS 202 Introduction to Child Life Specialist **3 credits**
An analysis of the child life specialist occupation; emphasis on the unique role this profession plays within the medical community.

FCS 203 End of Life Care **3 credits**
This course provides an overview of pediatric palliative and end-of-life care issues. This course will aid students who are seeking a Child Life Specialist internship.

FCS 242 Nutrition for Healthcare Professionals **3 credits**
The science of six nutrient classes, including digestion through metabolism and excretion, sources, functions, deficiencies and excess symptoms. The course covers the foundational knowledge and application of nutrition knowledge to clinical care, including weight control and common chronic conditions requiring nutrition therapy.

Prerequisites: Select One Course: CHEM 106 or CHEM 111

FCS 260 Child Health, Safety, and Nutrition **3 credits**
This course will provide students with knowledge of appropriate health, safety, and nutrition practices implemented in developmentally appropriate educational programs for children ages birth through eight years. Emphasis includes childhood acute and chronic illness, social, emotional and environmental health, health appraisals, health practices, safety promotion and first aid.

FCS 270 Family Housing **3 credits**
Physical, psychological, social, and managerial aspects of housing. Reciprocal relationship between housing and people. Guidelines and basic principles in planning for individual and family needs.

FCS 275 Consumers in the Economy **3 credits**
Economic decision making related to achieving maximum satisfaction from resources spent in the marketplace on housing, food, clothing, transportation, and other dimensions of the family. Basic information about the functions and responsibilities of the consumer, laws and agencies affecting consumer well-being and sources of help. Diverse Cultures: Purple

FCS 280 Food Systems and Policy **3 credits**
This class will explore the complex modern food system from a systems lens, including the development, establishment, and execution of policies regarding the production and availability of food and food/nutrition practices as well as the environmental impact of those practices. Policies that are explicit (set by law) and implicit (not the result of legislation) and the programs that derive from them will be explored. Agricultural systems and policies at the personal, local, national and global level will be considered.

FCS 284 Career and Technical Education 3 credits
Nature and scope of family and consumer sciences (FCS) education for grades 5-12. Principles and application of traditional, career/technical and critical science FCS education perspectives studied. Presentation of varied FCS teaching methods and techniques.

FCS 301 Lifespan Development 3 credits
Study of the family from a historical perspective; in terms of the family system and the broader ecological system; in terms of stresses faced and coping responses. This course will address issues at each of four life stages: infancy and early childhood; the school years; transition from school to adult life; and the adult years.

FCS 303 Working With Families 3 credits
Study of the role of the family in the development of the young child. Provide teachers and care providers with knowledge and understanding of family systems and appropriate interactions with families. Students will participate in a service-learning activity.

FCS 331 Clothing Construction and Textiles 3 credits
Introduction to principles and hands on application of construction techniques for clothing and home furnishings. Emphasis on terminology, equipment, application and practice of sewing skills. Emphasis on consumer aspect of textiles and applications. Student projects will be aligned with sewing skills and experience.

FCS 340 Food Science 4 credits
This class will explore why, how, and when physical and chemical phenomena occur during the preparation of food. Includes discussion and laboratory experience demonstrating how preparation methods affect food quality, composition, and nutritive value. Includes National Restaurant Association ServSafe Certification.

Prerequisites: FCS 150

FCS 360 Romantic Relationships 3 credits
This course is an in-depth examination and discussion of the many complex dynamics that make up romantic relationships. A diverse set of relationship topics are covered, including attachment, intimacy building and conflict diffusing strategies. Open discussion, critical thought, and application are encouraged via classroom and online opportunities.

FCS 375 Foodservice Management Principles 3 credits
This class will explore the foundational principles of foodservice management, including the specific management principles, the procurement of food, leadership, human resource management, cost accounting, marketing and accountability.

FCS 376 Quantity Food Production 4 credits
This class is a laboratory and experiential learning course. The class will explore the foundational principles of foodservice management including menu planning, inventory control, food production, recipe standardization and costing. Students will plan, market, implement, deliver and assess a quantity meal during the semester.

Prerequisites: FCS 340, FCS 375

FCS 380 Nutrition Focused Assessment 3 credits
This class is an in-depth study and practice of nutrition assessment techniques through experiential learning. The class will cover concepts and skills related to nutrition focused patient assessment, including the nutrition care process, nutrition screening, dietary histories, anthropometric measurements and laboratory interpretations in various age groups and conditions.

Prerequisites: FCS 242

FCS 400 Culturally Diverse Family Systems 3 credits
An analysis of culturally diverse family systems in America; emphasis on relationships within the family and with the larger community across the family life cycle. Diverse Cultures: Purple

FCS 401 Family Life Development 3 credits
The course is a study of development through the family life cycle. Emphasis on developmental interaction and systems theory.

FCS 402 Play and Child Development 3 credits
An examination of the important role that play has in the cognitive, emotional, physical, and social development of the child from birth to adolescence.

FCS 403 Parents and Peers and Adolescent Development 3 credits
Examination of how adolescents' development is affected by their relationship with their parents and with their peers.

FCS 414W Family Policy and Ethics 3 credits
Students are provided information of past and present policies that impact underserved families nationally and internationally. Students will identify, review, and discuss family policy using relevant and applicable theory. This course will advance student knowledge for careers in family policy as well as becoming an ethically-minded advocate and/or professional. Students will be provided a variety of opportunities to develop their knowledge and professional writing skills in the subject matter. Diverse Cultures: Purple

FCS 439 Nutrition for Physical Activity and Sport 3 credits
Provides in-depth exploration of the dietary needs of physically active individuals across the lifespan. Its laboratory component will focus on performance and interpretation of assessments commonly used to determine dietary and physiological status.

Prerequisites: FCS 140 or FCS 242

FCS 440 Advanced Human Nutrition 3 credits
This class is an advanced course in human metabolism, emphasizing the function and interaction of nutrients in metabolic and physiological processes.

Prerequisites: CHEM 111, FCS 242

FCS 460 Foundations of Medical Nutrition Therapy 3 credits
This class is the first in a series of two courses which explore the role of Medical Nutrition Therapy in the healthcare system. Utilizing a case-study and experiential learning approach, the course will cover pathophysiology and use of the Nutrition Care Process in normal and malnourished states.

Prerequisites: HLTH 321, FCS 380, FCS 440

FCS 462 Advanced Medical Nutrition Therapy 3 credits
This class is the second in a series of two courses which explore the role of Medical Nutrition Therapy in the healthcare system. Utilizing a case-study and experiential learning approach, the course will cover pathophysiology and use of the Nutrition Care Process in normal and more complex malnourished states.

Prerequisites: FCS 460 or FCS 560

FCS 463 Nutrient Metabolism and Genetics 2 credits
This course will explore the current literature and understandings of advanced metabolism, cellular physiology and genetics, including concepts of epigenetics and nutrigenomics. The course will explore theories of personalized nutrition.

Prerequisites: FCS 460 or FCS 560

FCS 473 Consumer Protection **3 credits**
Emphasizes the analyses and assessment of the effectiveness of consumer protection efforts. Emphasis will be placed on government laws, regulations, and agencies at the federal, state and local levels.

FCS 474 Community Resources and Family Support **3 credits**
The system approach to analyzing family situations to make decisions and correlate resources in the resolution of family managerial problems. Emphasis on the application of managerial skills to lifestyle situations: young-families, older adults, special needs, singles, and low income.

FCS 476 Nutrition Across the Lifecycle **3 credits**
This class explores nutrition needs across the lifecycle from preconception through pregnancy and lactation and from infancy to end of life. Utilizing a case-study and experiential learning approach, the course will cover nutrient requirements, nutritional risk and health over the lifespan.

Prerequisites: FCS 242

FCS 478 Family Finance **3 credits**
Introduce students to the how's and why's of family financial management to reduce mistakes made in successfully managing financial aspects of life. For non-business majors.

FCS 479 FCS Research **1-6 credits**
Supervised undergraduate research or investigation in Family Consumer Science under guidance of a faculty mentor.

FCS 480W Applied Food Science **3 credits**
This class is a laboratory and experiential learning course. The class will explore application of the principles of food science to food experiments and food product development. Students will plan and executive development of an original food product and conduct sensory evaluation testing with their recipe, developing skills in technical writing. ServSafe Certified.

Prerequisites: FCS 340, ServSafe Certified

FCS 482 Family Life Education **3 credits**
Analyze issues and concerns related to family life education. Investigate and practice teaching strategies and methods of evaluation. Preparation of appropriate lesson plans.

FCS 483 Adult and Technical Education in Family Consumer Science **3 credits**
Study of the philosophy, objectives, and implementation of adult and technical education for family consumer science professionals. Emphasis is placed on the knowledge and skills which are necessary for the process and preparation of delivering effective leader-led individual and group learning with concentration on methods, tools, and techniques employed in facilitating adult learning.

FCS 484 Program Development in Family Consumer Science **3 credits**
Curriculum development, implementation, and administration of family consumer science educational programs for youth of varied abilities, interests, and socioeconomic levels. 12-hour program clinical required. For FCS Education majors only; unless permission from instructor.

FCS 488 Parenting Education **3 credits**
A systems perspective on parent-child relationship. This course covers parent-child issues during the stages of human development. It also focuses on special needs children and families, cross-cultural issues and family violence. Emphasis is on research and theory and parenting education strategies.

FCS 493 Supervised Experiential Learning **1-6 credits**
A scheduled, supervised work assignment that includes on-site experiences in a nutrition-related area.

FCS 494 Family Life Education Practicum **1-3 credits**
A scheduled, supervised work assignment that includes preparation and delivery of family life education materials within a community/organizational/corporate setting.

FCS 496 Selected Topics: CDFS **2-3 credits**
Topics announced as offered. May be repeated.

FCS 497 Internship **1-6 credits**
A scheduled work assignment with supervision in private business, industry and government agency appropriate to each area of concentration.

Prerequisites: Consent

FCS 499 Individual Study **1-6 credits**
Arranged with the instructor.

Film Studies

FILM 110 Film Appreciation **4 credits**
Promotes appreciation and understanding of cinema through the study of film style, film history, film genres, and the cultural impact of films.

FILM 114 Introduction to Film **4 credits**
Study and analysis of the elements basic to a critical understanding of film: story elements; visual design; cinematography and color; editing and special effects; functions of sound and music; styles of acting and directing; and functions of genre and social beliefs.

FILM 210W Film Genres **4 credits**
Study and analysis of the techniques, thematic conventions, and cultural and historical contexts of major film genres including the western, the musical, crime, melodrama, science fiction, and gangster. Films will include a mix of classic and contemporary examples.

FILM 214 Topics in Film Studies **4 credits**
Course will explore specialized topics in film; may be repeated under a different topic.

FILM 216W Writing About Film **4 credits**
Studies analytical film language in several different film writing forms, including short and long-form reviews, collaborative analysis, and formal critical essays. Emphasizes social and critical contexts needed for film analysis and practice of writing in these film forms.

FILM 217 Introduction to Film Production **4 credits**
Introduces fundamentals of film production: writing, producing, directing, lighting, shooting, and editing, through lecture, critiquing the work of other filmmakers, and hands on production. By the end of this course students will be ready to pursue their own film projects.

FILM 275 Independent Cinema **4 credits**
This course introduces students to the history of independent filmmaking. It includes the close analysis and study of films and filmmakers in United States independent cinema and in independent cinemas across the globe. The focus is on films made outside of the Hollywood economic model of filmmaking. The student will learn how to conduct historical research in independent filmmaking and how to critically analyze independent films.

FILM 317 Advanced Film Production 4 credits

Designed for students who have prior experience and want to make an experimental, narrative and/or documentary film. Students will move from screenplay/proposal to production and post production of short films. Pre-req: ENG 217 or permission of instructor. May be repeated.

Prerequisites: FILM 217 or permission of instructor

FILM 334W International Cinema 4 credits

Introduces students to film from a variety of world cultures. Designed to increase knowledge of world cultures and appreciation and understanding of cultural differences in representation. Emphasizes history of national cinemas, film analysis, and writing. Diverse Cultures: Purple

FILM 342 Film Performance Analysis 4 credits

This course introduces students to the close study of performance in the cinema. Through close analysis, we will challenge ourselves to think carefully about the creative contributions of actors to film narratives. Students will be taught how to closely describe, read, and interpret film performances, and will be introduced to critical frameworks for analyzing film acting in its various historical, aesthetic, and socio-cultural contexts. The focus in the course will be primarily on performance in U.S. cinema, although some case studies will also look at performance in international film.

FILM 402 Film History I (1895-1960) 4 credits

This course examines the major films, filmmakers, movements, and trends that defined cinema throughout its first 65 years as a medium. It utilizes a range of historical lenses--aesthetic, industrial, technological, sociocultural--to offer a fuller understanding of film's development across varying temporal and geographic contexts. To encourage engagement with the construction of cinematic history, the course both engages with primary documents and analyzes scholarly historical work on film's creation and expansion. Ultimately, the class seeks to foster both knowledge of early cinematic history and appreciation for film history as a mode of research and writing.

FILM 412 Film History II (1961-Present) 4 credits

This course examines the major films, filmmakers, movements, and trends that have defined cinema from the early 1960s to the present. It utilizes a range of historical lenses--aesthetic, industrial, technological, sociocultural--to offer a fuller understanding of film's development across varying temporal and geographic contexts. Utilizing primary documents alongside scholarly historical accounts, it also allows students to conduct research into contemporary titles and make an argument for how they reflect and/or challenge larger historical patterns. Ultimately, the course explores how the state of modern cinema can be contextualized and understood through an engagement with the (relatively) recent filmic past.

FILM 416 Film Theory and Criticism 4 credits

This course provides both a historical survey of film theory and the opportunity to actively engage in analyzing film using theoretical tools. Film theory is a set of conceptual frameworks through which to understand cinema and the various artistic, social, and psychological questions the medium poses to viewers. Through a study of major film theories and their uses in critically analyzing film, this course will further prepare you to be an informed and engaged viewer of all kinds of cinema.

Prerequisites: FILM 402 or FILM 412

FILM 472 Film Authorship 4 credits

Film Authorship teaches the study of authorship in cinema and other forms of moving-image media. The course focuses on the concept of authorship throughout the history of film studies by looking at the career of one or more film directors. The course explores the careers of the selected director(s) in their varying historical, cultural, ideological, theoretical, and aesthetic contexts. The course may be repeated for credit if the particular director(s) under discussion differ from the previous course the student has taken. The director(s) studied will be listed under Notes in the course schedule whenever the course is offered.

FILM 493 Advanced Topics in Film Studies 1-4 credits

Topic-oriented course in film studies. May be repeated with change of topic.

FILM 498 Internship 1-6 credits

On-site field experience, the nature of which is determined by the specific needs of the student's program option. May be repeated with change in topic. Pre: Consent of Instructor

Prerequisites: Consent of instructor

FILM 499 Individual Study 1-4 credits

Extensive reading, research, writing and/or film production in an area for which the student has had basic preparation. May be repeated with change in topic. Pre: Consent of instructor

Prerequisites: Consent of instructor

Finance

FINA 100 Personal Financial Management 3 credits

Fundamental concepts of managing cash flows: preparation of personal budget, personal debt management, financial goal establishment, savings and investments, insurance.

FINA 362 Business Finance 3 credits

An introduction to finance relating to problems, methods, and policies in financing business enterprise.

Prerequisites: ACCT 200

FINA 372 Special Topics in Finance 3 credits

Current topics of significance in Finance. May be repeated for credit.

FINA 375 Business Analytics 3 credits

Introduction to analytic tools and techniques using business applications. Grading Method

Prerequisites: ECON 207, STAT 154

FINA 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: Permission of the Chairperson of the department; co-op contract; other prerequisites may also apply.

FINA 400 Financial Analysis Using Excel 3 credits

This course is intended for students who have completed FINA 362 (Business Finance) and wish to apply the introductory finance concepts and theories to practical problems in corporate finance and valuation. In particular, the course will use Microsoft Excel to cover topics such as time value of money, stock and bond valuation, cost of capital, capital budgeting, financial statement and ratio analysis, and option pricing and strategies.

Prerequisites: FINA 362

FINA 458 Estate Planning 3 credits

Principles and techniques for estate planning. Examination of various retirement plans available, and the legal and tax environment impacting an estate's portfolio.

Prerequisites: FINA 100 or FINA 362

FINA 459 Personal Financial Planning 3 credits

Fundamental concepts of personal financial management: insurance, budgeting, credit, savings, investments, retirement and estate planning, and consumer debt management.

Prerequisites: ACT 330, FINA 458, FINA 460, FINA 470. Select FINA 100 or FINA 362.

FINA 460 Investments 3 credits

Formulation of investment policy of individuals and institutions, factors influencing the values of securities, and techniques of portfolio selection and management.

Prerequisites: FINA 362

FINA 461 Advanced Corporate Finance 3 credits

This course encompasses advanced principles and concepts concerning the nature and types of debt financing, the valuation and use of leases, the process and tools of risk management, the calculation and estimation of financial ratios, the financial planning and forecasting processes, and the understanding of working capital.

Prerequisites: FINA 362

FINA 462 Strategic Financial Management 3 credits

Applications of financial principles and analytical tools through the use of case studies and problems from local businesses.

Prerequisites: FINA 362

FINA 463 Equity Valuation 3 credits

Tools and techniques to aid in individual and institutional portfolio management.

Prerequisites: FINA 362 and FINA 460

FINA 464 Financial Institutions and Markets 3 credits

Introduction to money and capital markets, instruments and institutions. Consideration of the management problems of financial institutions.

Prerequisites: FINA 362

FINA 466 Retirement Planning 3 credits

Fundamental concepts of employee benefits in relation to pertinent legislation, modern management techniques, and financial constraints that affect the formulation and implementation of a benefit plan.

Prerequisites: FINA 100 or FINA 362

FINA 467 Insurance and Risk Management 3 credits

Examination of the fundamentals of the insurance industry; the risk management process; and commercial insurance exposures and policies including commercial property, general liability, and workers' compensation.

FINA 470 Personal Insurance 3 credits

Examination of personal insurance exposures and policies including auto, health, home and life.

FINA 475 Business Analytics II 3 credits

This course introduces concepts and skills in unsupervised data mining, prescriptive analytics, and an introduction to unstructured data analytics (text). Students will learn basic coding in R, Python, database management using SQL, and visualization with Tableau.

Prerequisites: FINA 375

FINA 477 Real Estate 3 credits

Fundamental principles: valuation, brokerage, financing, law, property management, land descriptions and basic investment.

Prerequisites: FINA 100 or FINA 362

FINA 480 Options and Futures 3 credits

Trading practices and procedures utilizing these contracts in hedging and risk management policies for business.

Prerequisites: FINA 362

FINA 482 Risk Management for Financial Institutions 3 credits

Fundamental concepts of commercial bank management, financial regulations, and risk management in financial institutions. Coverage includes the financial statements of commercial banks and their use in evaluating a bank's financial performance; bank's assets, liabilities, and off-balance sheet items management and different risk management approaches applied in financial institutions.

Prerequisites: FINA 362

FINA 490 Debt Markets 3 credits

The course provides a comprehensive discussion of debt securities. It discusses salient features of different debt securities, techniques used to value different types of bonds, measures of interest rate risk, asset-backed securities, fundamentals of credit analysis, modeling credit risk, the term structure of interest rates, the arbitrage-free valuation framework for debt securities, and the role of debt securities in a portfolio.

Prerequisites: FINA 362

FINA 492 Study Tour 1-3 credits

Study tours are led by Minnesota State University, Mankato faculty and provide students with opportunities to visit companies and attend lectures by renowned experts from key sectors of economy, government, and business.

Prerequisites: Permission Required

FINA 493 Maverick Fund 3 credits

Students are responsible for generating investment ideas consistent with the Maverick Fund Investment Policy Statement.

Prerequisites: FINA 362.

Corequisites: FINA 460

FINA 497 Internship **1-9 credits**
Supervised experience in business, industry, state or federal institutions.
Prerequisites: Permission Required

FINA 498 Internship **3 credits**
Supervised experience in business, industry, state or federal institutions.
Prerequisites: Permission Required

FINA 499 Individual Study **1-3 credits**
Prerequisites: Permission Required

First Year Experience

FYEX 100 First Year Seminar **1 credits**
First Year Seminar supports the development of student success skills, such as reading, writing and speaking; helps students gain intellectual confidence; builds in the expectation of academic success; and provides assistance in making the transition to the University.

French

FREN 101 Elementary French I **5 credits**
An introduction, within a cultural context, to the basic skills of listening, speaking, reading and writing.

FREN 102 Elementary French II **5 credits**
An introduction, within a cultural context, to the basic skills of listening, speaking, reading and writing.
Prerequisites: FREN 101 or equivalent

FREN 201 Intermediate French I **4 credits**
Grammar review, oral practice, written composition and development of reading and listening skills within a cultural context.
Prerequisites: One year university French or equivalent

FREN 202 Intermediate French II **4 credits**
Grammar review, oral practice, written composition and development of reading and listening skills within a cultural context.
Prerequisites: FREN 201 or equivalent

FREN 214 Paris et L'Ile de France **1-3 credits**
Visits to the major churches, cathedrals, castles, monuments, museums and neighborhoods in and around Paris.
Prerequisites: FREN 101, FREN 102, or equivalent

FREN 216 Conversation **1-4 credits**
Practice in intermediate-level conversational skills.
Prerequisites: FREN 101, FREN 102, or equivalent

FREN 217 Modern France **1-3 credits**
Introduction to contemporary French civilization.
Prerequisites: FREN 101, FREN 102, or equivalent

FREN 218 On Y Va **1 credit**
Preparation for study in France.

FREN 261 Conversation & Pronunciation **1-3 credits**
Systematic development of conversational idiom and vocabulary. Intensive work on pronunciation. May be taken by majors and minors up to three times.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 280W Parallel Worlds: Exploring Cultures & Symbols **4 credits**
This course explores a wide range of cultural topics such as race, gender, human rights, social conflict, mythology, imaginary worlds, etc. Topics vary every semester and will be explored from a global perspective involving at least 4 cultures (e.g. Dakota, German, Francophone, Scandinavian, Hispanic, Lusophone, etc.). The course is taught in English through the lens of literary and cultural criticism with a focus on French and Francophone studies, and exposes students to international and diverse points of view that prepare them to be global citizens.
Diverse Cultures: Purple

FREN 293 Supervised Study in French-Speaking Countries **1-6 credits**
Topics will vary. Study for credit must be approved by the department prior to departure.
Prerequisites: FREN 101, FREN 102, or equivalent

FREN 299 Individual Study **1-4 credits**
Topics will vary.

FREN 301 Third Year Vocabulary Review **3 credits**
Systematic review of French vocabulary.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 302W Composition **2-4 credits**
Review of grammar and vocabulary. Practice in descriptive, narrative, and expository prose.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 304 Third Year Grammar Review **3 credits**
Systematic review of French grammar.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 305 France Today **1-4 credits**
Social, political, and economic trends in contemporary France.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 314 Paris et L'Ile de France **1-3 credits**
Visits to the major churches, cathedrals, castles, monuments, museums and neighborhoods in and around Paris.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 315 Composition **1-3 credits**
Practice in descriptive and narrative prose. Acquisition of grammatical structures and vocabulary beyond the intermediate sequence.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 316 Conversation **1-4 credits**
Practice in conversational skills.
Prerequisites: FREN 201, FREN 202, or equivalent

FREN 317 Modern France Introduction to contemporary French civilization. Prerequisites: FREN 201, FREN 202, or equivalent	1-3 credits	FREN 414 Paris et L'Île de France Visits to the major churches, cathedrals, castles, monuments, museums and neighborhoods in and around Paris. Prerequisites: FREN 201, FREN 202, or equivalent	1-3 credits
FREN 318 Introduction to Business French Introduction to basic concepts associated with French business practices. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits	FREN 416 Conversation Practice in advanced conversation skills. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits
FREN 322 Listening Comprehension and Pronunciation Development of listening comprehension and pronunciation through the use of tapes, videos, films, compact discs, and other recorded materials. Prerequisites: FREN 201, FREN 202, or equivalent	1-3 credits	FREN 417 Modern France In-depth study of different aspects of contemporary French civilization. Prerequisites: FREN 201, FREN 202, or equivalent	1-3 credits
FREN 323 French Phonetics & Applied Linguistics A study of the sound system in French. Intensive oral practice. Prerequisites: FREN 201, FREN 202, or equivalent	2-4 credits	FREN 420 French Seminar In-depth study of an author, genre, movement, theme or period. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits
FREN 350 Introduction to French Literature A beginning literature course designed to teach students to read with understanding and critical ability. Prerequisites: FREN 201, FREN 202, or equivalent	3 credits	FREN 432 French Literature I A study of the major authors, works and movements of two successive centuries of French literature. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits
FREN 366 Oral Communication Intensive practice in advanced conversational skills. May be repeated for credit. Prerequisites: FREN 201, FREN 202, or equivalent	1-6 credits	FREN 442 French Literature II A study of the major authors, works and movements of two successive centuries of French literature. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits
FREN 393 Supervised Study in French-Speaking Countries Topics will vary. Study for credit must be approved by the department prior to departure. Prerequisites: FREN 201, FREN 202, or equivalent	1-6 credits	FREN 452 French Literature III A study of the major authors, works and movements of two successive centuries of French literature. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits
FREN 402 French Civilization Survey of historical, philosophical, literary and artistic development of France from the beginning to the present. Prerequisites: FREN 201, FREN 202, or equivalent	3-4 credits	FREN 492 (1-4) Individual Study Topics will vary. Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits
FREN 404 French Syntax Systematic review of French grammar. Prerequisites: FREN 201, FREN 202, or equivalent	2-4 credits	FREN 494 Supervised French Study Topics will vary. Study for credit must be approved by the department prior to departure. Prerequisites: FREN 201, FREN 202, or equivalent	1-6 credits
FREN 405 Business French I Study of current vocabulary, terminology and practices used in the business world. Study of developments affecting the French business, industrial and agricultural communities. Prerequisites: FREN 201, FREN 202, or equivalent	2-4 credits	FREN 497 Internship Prerequisites: FREN 201, FREN 202, or equivalent	1-6 credits
FREN 406 Business French II Study of France's position in the European Economic Community and of the development of French business law with emphasis on the obligations and rights of business people, the classification and organization of the various types of companies, the emission of contracts and other documents. Prerequisites: FREN 201, FREN 202, or equivalent	2-4 credits	FREN 499 Individual Study Prerequisites: FREN 201, FREN 202, or equivalent	1-4 credits

Gender and Women's Studies

GWS 110 Introduction to Gender 4 credits

This course familiarizes students with the field of Gender and Women's Studies. It focuses on major questions and approaches to understanding gender alongside race, class, and sexuality, among other identity categories. Diverse Cultures: Purple

GWS 110W Introduction to Gender 4 credits

This course familiarizes students with the field of Gender and Women's Studies. It focuses on major questions and approaches to understanding gender alongside race, class, and sexuality, among other identity categories. Diverse Cultures: Purple

GWS 120 Violence and Gender 4 credits

Students will examine the gendered and systematic nature of violence. Special attention will be given to the ways in which violence against women is perpetuated through interpersonal relationships and through institutions such as schools, the judicial system, welfare policies. The effects of internalized oppressions, such as internalized sexism, racism, and homophobia will be discussed. Emphasis on feminist analysis and building skills for educating ourselves and others about constructing non-violent cultures. Diverse Cultures: Purple

GWS 120W Violence and Gender 4 credits

Students will examine the gendered and systematic nature of violence. Special attention will be given to the ways in which violence against women is perpetuated through interpersonal relationships and through institutions such as schools, the judicial system, welfare policies. The effects of internalized oppressions, such as internalized sexism, racism, and homophobia will be discussed. Emphasis on feminist analysis and building skills for educating ourselves and others about constructing non-violent cultures. Diverse Cultures: Purple

GWS 220 Sex and Gender Worldwide 4 credits

This course will examine women's lives and activism, past and present, throughout the world. We will explore and evaluate individual and collective efforts to achieve social justice in the context of interlocking systems of oppression. Fall, Spring, Summer Diverse Cultures: Purple

GWS 220W Sex and Gender Worldwide 4 credits

This course will examine women's lives and activism, past and present, throughout the world. We will explore and evaluate individual and collective efforts to achieve social justice in the context of interlocking systems of oppression. Fall, Spring, Summer Diverse Cultures: Purple

GWS 222 Gender, Law, & Justice 4 credits

We explore the influence of gender on legal rights in the United States historically and today, focusing on constitutional rights, employment, education, reproduction, the family, gender-based violence, and related issues. We will study constitutional and statutory law as well as public policy. Race and ethnicity, sexual orientation, socioeconomic status, and additional intersecting identities will be examined. Diverse Cultures: Purple

GWS 225 Queer America 4 credits

An introduction to the study of lesbian, gay, bisexual, and transgender communities and identities, including challenges to homophobia and heterosexism. We will explore social and historical constructions of LGBT identities as they vary across ethnic, class, and gender lines. Fall, Spring Diverse Cultures: Gold

GWS 225W Queer America 4 credits

An introduction to the study of lesbian, gay, bisexual, and transgender communities and identities, including challenges to homophobia and heterosexism. We will explore social and historical constructions of LGBT identities as they vary across ethnic, class, and gender lines. Fall, Spring Diverse Cultures: Gold

GWS 230 Gender, Race, and Popular Culture 4 credits

Explores how popular culture shapes and mirrors our understandings of gender and sexuality and their intersections with race and class. Critically examines representations of gender and race in popular culture forms such as film, television, music, books, and the internet. Diverse Cultures: Purple

GWS 250 Health, Wealth, and Power 4 credits

In this course, students will learn about health disparities and the social determinants of health in the United States. We will analyze how gender, race, class, ability, and sexuality impact access to health resources (including the environment, food, and medical care) as well as health outcomes. In addition to individual barriers to health, we will analyze how institutions and structural factors impact health in America. Topics may include health disparities by race and ethnicity, barriers to LGBT health care, weight discrimination, reproductive justice, and environmental effects on health. Diverse Cultures: Purple

GWS 260 Selected Topics 1-4 credits

Offered according to student demand and instructor availability/expertise, topics courses provide curriculum enrichment on an ongoing basis.

GWS 277 Individual Study 1-6 credits

Concentrated study and research in areas of student's special interests/expertise under supervision of a faculty member.

Prerequisites: Women's Studies major/minor

GWS 290 Workshop 1-4 credits

Topics to be announced. May be retaken for credit.

GWS 310 Feminist Thought 4 credits

This course will introduce you to major theories of feminism as well as key issues in contemporary feminist thought. Students will have an opportunity to advance their own feminist thinking through engagement with a diversity of theoretical perspectives on gender. Fall

GWS 330 Feminist Activism and Social Justice 4 credits

Students in this course will learn concrete examples of feminist and other social justice activism. Students will conceptualize, plan, and implement their own feminist activism project, and use research skills to contextualize their action within feminist scholarship. This course will give students a deeper introduction to contemporary feminist activism and its connections to other social justice movements in the United States.

GWS 340 Undergraduate Seminar 4 credits

This course explores an advanced topic in women's and gender studies. Spring

Prerequisites: GWS 110 or GWS 220 or consent

GWS 411 Sexual Assault Victim Advocacy 4 credits
Students will learn about the legal, cultural, and political factors that contribute to sexual assault and gendered violence. This course will combine hands-on training in activism from course instructors and community members in the field of sexual assault advocacy, as well as a background in theories of gender and sexual assault. Sexual assault advocates provide confidential services to victims of sexual violence, including hospital and legal advocacy, crisis counseling, and emotional support. Students who satisfactorily complete 40 hours of training will be certified as sexual assault advocates at the end of the semester. Diverse Cultures: Purple

GWS 420 Identity Work in Women's Reentry Experiences 4 credits
Applies sociological theories of identity to the experiences of women being released from prison. Taught at a women's prison in Minnesota, and integrates MSU students with students drawn from the educational program located within the women's prison. Same course as SOC 420. Credit allowed for only one of these courses. Diverse Cultures: Gold

GWS 440 Cultivating Inclusive Classrooms 4 credits
We explore key philosophical and methodological issues in feminist teaching with an emphasis on application of the material.

GWS 455 Sexuality & Queer Identities 4 credits
This course explores the interconnections between sex, gender, and sexuality, with special attention to how institutions and communities shape experience and identity.

GWS 460 Selected Topics 1-4 credits
Offered according to student demand and instructor availability/expertise, topics courses provide curriculum enrichment on an ongoing basis.

GWS 477 Individual Study 1-6 credits
Concentrated study and research in areas of student's special interests/expertise under supervision of a faculty member.

Prerequisites: Must be department major/minor

GWS 490 Workshop 1-4 credits
Topics to be announced. May be retaken for credit.

GWS 497 Internship: Teaching 1-6 credits
Students assist a faculty member in teaching a 100 or 200 level GWS course.

Prerequisites: GWS 110 or GWS 220 and consent.

GWS 498 Internship: Community 1-6 credits
The Gender and Women's Studies internship provides students with the opportunity to gain experience within an on-campus, off-campus private, public or community organization. This internship provides a means for pursuing an interest in a field of work, or within a particular organization; gaining work and/or activist experience and practical skills; making appropriate contacts which might be useful in establishing a future career.

Geography

GEOG 100 Elements of Geography 3 credits
An introduction to Geography and its themes of study. The course will familiarize students with where places are located in the world together with their cultural and physical features. Students will be tasked to think critically and diversely about various cultures and features of the modern world. Diverse Cultures: Purple

GEOG 101 Introductory Physical Geography 4 credits
An introduction to the science of understanding earth's physical environment, with focus on the processes that drive fundamental earth systems. Includes investigation of natural hazards, earth-sun relationships, climate and climate change, weather, flora and fauna, soil, landforms, and surfaces processes driven by rivers, glaciers, wind, rock decay, gravity. North American and world-wide examples are used to demonstrate spatial distribution and interrelationships. Some coverage of human-environmental relations.

GEOG 102 World Regional Geography 3 credits
This course will introduce students to the diverse physical, social, environmental, economic, political, and cultural aspects of the major regions and countries of the world. Students will gain knowledge of the similarities and differences in the cultural and natural environments in various regions. Other areas introduced in this course will be the significance of each major region at the global scale; relationships between regions and their population; and ways and means by which people live their lives in diverse societies. Diverse Cultures: Purple

GEOG 103 Introductory Cultural Geography 3 credits
Cultural aspects of interactions between people and their environment focusing on spatial patterns of population, agriculture, politics, language, religion, industrialization, and urbanization. Emphasis is placed on the processes that create the cultural landscape and on management of land and natural resources. Diverse Cultures: Purple

GEOG 105 Introduction to Geospatial Technologies 3 credits
This non-lab gateway course introduces geospatial thinking, scientific theories and cutting-edge technologies in Geospatial Science (GISc) through lectures and hands-on activities. It focuses on field data collection, space and ground based sensors, satellite imagery, aerial photography, LiDAR, digital mapping, data visualization, and geoanalytics. It prepares students for higher-level courses such as Cartography, Geographic Information Systems (GIS), Remote Sensing, and the Global Positioning System (GPS). Students will learn how to solve problem with a variety of geospatial science methods. Topics include interrelationships between environmental, economic and cultural systems, social and ecological dimensions of health, and natural resource issues.

GEOG 205 Precision Agriculture 3 credits
This course objectives includes basic understanding of precision agriculture high tech equipment and strategies. Students will gain an understanding of the hardware, software and management strategies of precision agriculture. Areas of study will include GIS, GPS, remote sensing, differential correction, yield monitoring, and grid mapping. Farmworks software will be incorporated into the course.

GEOG 210W Landscapes and Places 3 credits
Introduction to the concepts of landscape and place in a variety of geographical writings. Emphasizes works with strong regional overtones. The interaction between the physical and cultural environments is paramount. Field observation and integrating imagery into original student writing documents is also addressed.

GEOG 217 Weather **4 credits**

An examination of the processes involved in weather formation. Students will be introduced to weather map analysis, simple forecasting and observational techniques, and weather instruments.

GEOG 299 Individual Study **1-3 credits**

An assignment that is tailored to individual needs of a student. The instructor and the student arrange the type of project for the student, such as a term paper, readings, mapping, field investigation, or computer cartography.

Prerequisites: Consent

GEOG 313 Natural Disasters **4 credits**

An examination of the underlying causes of natural disasters occurring over the globe. Focus will be primarily upon weather and climate related disasters. Students will also be exposed to concepts of plate tectonics and how these affect the distribution of earthquakes and volcanism over the planet.

GEOG 315 Geomorphology **4 credits**

This course explores the scientific study of earth's surface, through investigating landscapes and landforms, their characteristics, origin and evolution, and the biologic, chemical, and physical processes that create these landscapes and landforms through time. Fundamental linkages between process and form and climate/climate change, earth materials, geologic structures, plate tectonics, and biological systems will be examined. Implications of anthropogenic influences on processes and modification of earth's surface will also be assessed. Laboratory exercises and field trips are required.

GEOG 340 United States **3 credits**

Students will develop a knowledge of the similarities and contrasts in regional landscapes and cultures of the United States.

GEOG 342 Geography of Minnesota **3 credits**

The course involves the natural and human environments of Minnesota. The physical resources, population history, and current issues are emphasized.

GEOG 352 GIS for Crime Analysis **3 credits**

This is a hands-on, exercise-based GIS for Law Enforcement course analyzing the contemporary realities of the spatial and geographic aspects of crime. Students acquire practical tools necessary to conduct effective mapping and spatial analyses of crime using GIS software. Lab activities are designed to benefit those working with public safety and emergency response systems.

GEOG 370 Cartographic Techniques **4 credits**

The lecture material addresses map projections, technology changes in production, basic analysis and depiction of quantitative point, line and areal data. Also, the evaluation of maps and the history of cartography from a European, Oriental, and American Indian perspective is discussed. All maps are drawn using computer assistance.

GEOG 373 Introduction to Geography Information Systems **4 credits**

The course will be an introduction to the analysis of spatial data using the concept of a geographic information system (GIS). Content of the course will be, to a great extent, based on the NCGIA core curriculum with assignments tailored to the data and software available within the department such as ArcGIS.

GEOG 401 Colloquium **1 credits**

Overview of geographic work, interests, and research by guest speakers.

GEOG 409 Selected Topics **1-4 credits**

The instructor will develop a specific course on a geographic topic, such as soils, landforms, water resources, energy, housing, population geography, or some other topic for the class.

GEOG 410 Climatic Environments **3 credits**

The characteristics of particular climates and understanding the factors that control their spatial distribution.

GEOG 411 Soils Geomorphology **4 credits**

This course examines the dynamic nature of soils including the processes that control formation and degradation, anthropogenic impacts, spatial distribution across landscapes, and links among soils and other components of the earth system. A combination of lectures and hands-on exercises in field and laboratory settings are utilized to explore the complex interactions between soils and landscapes.

GEOG 412 Advanced Weather **4 credits**

Meteorological principles and theory are applied to the analysis and interpretation of weather data in order to better understand the structure and evolution of synoptic-scale weather systems. Basic knowledge of mathematics will be assumed.

Prerequisites: GEOG 217

GEOG 413 Soil Conservation **4 credits**

This course examines basic concepts and components of soils, factors that influence formation and degradation, soil as a natural resource for ecosystems and societies, and the importance of soil conservation to restore functions that reduce erosion, improve water quality and quantity, mitigate climate change, enhance biodiversity, and increase agricultural productivity to feed an expanding population. Students will gain hands-on experience in field and laboratory settings to assess soil quality and quantity, investigate site-specific and landscape-scale impacts to soils, and develop management strategies to protect and improve soils in urban and agricultural systems.

GEOG 414 Biogeography **3 credits**

This course analyzes the distribution and concentration of plants and animals throughout the world. Emphasis is placed on the role of evolution, tectonics, and physical barriers to the distribution and migration of species. Special emphasis is placed on the role of humans in the modern redistribution of species.

GEOG 415 Earth Surface Processes **4 credits**

This course examines the natural processes that operate on our planet and shape the landscape presently. This will be done through a focus on applied exercises, measurements and direct/indirect observations. Through applied projects students will have an understanding of how these processes interact within a variety of Earth Systems.

GEOG 416W Fluvial Geomorphology and Hydrology **4 credits**

An in-depth investigation into fluvial systems including sediment transport, sediment budget analysis, channel geometry/morphology, drainage basin analysis, geomorphic evolution of fluvial landscapes, hydrology (i.e., runoff generation and channel formation, storm hydrograph and flood analysis, discharge measurements) of fluvial systems, and effects of anthropogenic modification and use of fluvial systems. Registration with completed prereqs or instructor consent.

Prerequisites: Either GEOG 101 or GEOL 121 and GEOG 315 or 415 are recommended. Or instructor consent.

GEOG 417 Quaternary Environments and Climatic Change 4 credits

An interdisciplinary investigation into Quaternary environmental/climatic change and the impact of change on the behavior and evolution of humans. This course has three segments: 1) An examination of natural systems responsible for climatic change, the impact climatic fluctuations have on Earth systems, timing of Quaternary changes, evidence of climatic/environmental change from spatially distant, climatically distinct environments; 2) Investigation into worldwide evidence of human evolution, global dispersion, and adaptation to environmental systems; 3) Introduction into various methodological approaches in Quaternary archeologic, geomorphic, and climatic studies. Focus is on proxy records used for climate/environmental reconstruction, archeologic/geomorphic field methods, geochronologic dating methods.

Prerequisites: Either GEOG 101 or ANTH 210; We strongly encourage students to take GEOG 315 before enrolling. GEOL 121 can be substituted for GEOG 101 with instructor permission.

GEOG 420 Conservation of Natural Resources 3 credits

Survey of natural resources emphasizing energy, minerals, soils, fisheries, and water resources. Also addresses timber, wetlands, and wildlife on public and private lands.

GEOG 425 Economic Geography 3 credits

Examines national and international economic geographical order and trade activities. Topics include economic development, competition, international trade, and impacts on the environment and people.

GEOG 428 Human Migration 3 credits

This course will introduce students to the multidimensional causes of human migration including immigrant and refugee populations, and their consequences for societies around the world. Students will gain knowledge on the trends and patterns of global migration across diverse geographic, socio-economic, and cultural regions. Additionally, the course will address contemporary issues like migrant and refugee categories; globalization and migrant labor in the economy; role of the state in migration processes; migration policies; migrant identities (race, class, gender, age, citizenship); and migrant rights as they relate to issues of equity and inclusion. Diverse Cultures: Purple

GEOG 435 Urban Geography 3 credits

Hypotheses and generalization related to urban functions, structure, land use, distribution, growth, and sometimes decline. Emphasis will be mostly on the United States' urban places.

GEOG 436 Rural Geography 3 credits

Introduction to theoretical frameworks for analyzing processes of economic, environmental, and social change in rural regions. Includes basic and advanced geographical principles and techniques for studying non-urban areas. Designed to equip students with the knowledge and skills necessary for carrying out research projects on rural environments.

GEOG 437 Political Geography 3 credits

Spatial problems and structure of governments, focusing on countries of the world and their geographic internal order. Covers such topics as boundary problems, strategic locations, and geopolitical explanations of international and internal relations and conflicts.

GEOG 438 Social Geography 3 credits

Concepts and theories concerning global and national social problems and the significance of geographic analytic methods for social research. Study of factors related to variations in regional standards of living.

GEOG 439 Transportation Modeling & GIS 4 credits

Four major sets of ideas will be covered: (1) Introduction to Spatial Organization, (2) Network Analysis, (3) Allocation Methods, and (4) Urban Transportation. The emphasis is on these approaches to understanding the geography of transport by description, explanation, and normative or optimal methods.

GEOG 440 Field Studies 1-4 credits

Various excursions to study physical and cultural landscapes inside and outside of Minnesota.

GEOG 445 Latin America 3 credits

Regional geography covering the ecological and human environment of Middle and South America, including the Caribbean. Students can pick specific topics to study in detail. The geographic relations between the USA and Latin America are also covered.

GEOG 446 Canada 3 credits

Students will develop a knowledge of the environmental, cultural, historical, and economic geographies of Canada. Readings of bestselling fiction and scholarly works written by Canadians will provide a Canadian perspective on the nation's past, present, and future.

GEOG 450 Europe 3 credits

Cultural, environmental, and economic background of Europe west of Russia and Ukraine. Following a general geographic survey, the course will cover major regions and countries.

GEOG 458 Geography of East Asia 3 credits

Examines the physical and human environments of eastern Asia, mainly China, Korea and Japan. The class will be assisted by visual sources and hands-on use of primary documents.

GEOG 471 Digital Field Mapping with GPS 4 credits

This course covers the basic strategies for field mapping using data acquired from global positioning systems (GPS).

Prerequisites: GEOG 373 or equivalent

GEOG 473 Intermediate GIS 4 credits

Comprehensive examination of GIS for manipulation and analysis of spatially-referenced data, including data structure and organization, input and output problems, data management, and strategies for analytical work.

Prerequisites: GEOG 373

GEOG 474 Introduction to Remote Sensing 4 credits

This is an introductory course on theories and techniques of remote sensing. Focus will be placed on providing students with a general overview of the application of remote sensing to practical problems, and hands-on experience for image processing and analysis.

GEOG 475 Open-Source GIS 4 credits

This course will introduce students to the fundamental knowledge and techniques of open-source GIS and geospatial data analysis. Students will learn the basic and advanced GIS functions in QGIS, a popular open-source GIS with advanced capabilities. The major topics that will be covered include open-source GIS data standards; working with projections and available GIS data; making maps in QGIS; spatial and attribute data query, editing, and manipulation; multi-criteria overlay analysis; raster image styling and analysis; 3D and terrain analysis; spatial pattern analysis; spatial interpolation; automating map creation and complex workflows using processing models; customize and extend QGIS.

Prerequisites: GEOG 373, GEOG 474

GEOG 476 Spatial Statistics **3 credits**

Descriptive statistics, probability, hypothesis testing, introduction to non-parametric statistics, correlation, introduction to regression analysis, spatial statistics, and principles of data representation in graphs and tables.

GEOG 477 Topics in Techniques **1-3 credits**

This offering will include a variety of selected technical topics in geography, including but not necessarily limited to manual cartographic drafting and negative scribing, photomechanical techniques in production cartography, aerial photo interpretation, and advanced coverage of digital analysis of satellite-derived remote sensor data and global positioning systems.

Prerequisites: Consent

GEOG 478 Spatial Analysis with GIS **3 credits**

Introduction to theoretical frameworks for spatial analysis and geographic quantitative methods. Includes basic and advanced geographic principles and techniques for studying spatial patterns. Designed to equip students with the skills necessary to carry out research projects that demand advanced statistics.

GEOG 479 GIS Practicum **1-4 credits**

This offering will include supervised project work in raster-based and/or vector-based GIS, using problems and data drawn from local or regional agencies or other professional-level organizations with whom the Geography Department maintains a relationship. Students must have completed one of the prerequisite courses, or a course or professional-level experience.

Prerequisites: Prerequisite: GEOG 373, or 473/573, or permission of instructor.

GEOG 480 Seminar **1-4 credits**

Topics vary in physical, cultural, economic, political, and historical geography, as well as environmental conservation and geographic techniques.

GEOG 481 GIS and Environmental Hazards **3 credits**

This course teaches students to reconstruct past landscapes and identify environmental hazards related to historical land use using GIS and remote sensing software. Applications include the identification of hazardous waste sites, wetland drainage, bluff erosion and other environmental hazards relevant to local history research, environmental consulting, archaeology, resource management, real estate, planning and civil engineering. Students will learn to use and interpret historical air photos and maps, digital imagery and LiDAR in problem-solving contexts and to report research findings in effective written, graphic and verbal presentation formats used by government agencies and private consulting firms.

Prerequisites: GEOG 373

GEOG 482 GIS for Natural Resources **4 credits**

This course provides students as well as natural resource professionals the opportunity to develop knowledge of natural resources management based on GIS science. Detailed examples and discussions of GIS operations and analyses associated with managing natural resources are provided. Weekly labs and the final project will focus on various GIS applications in this field. For example, integrating GIS and remote sensing techniques for sustainable land development, conservation biology, forest, water, wetland, wildlife, and agriculture management. Students will also learn how to combine GIS concepts with GIS software skills and apply them to real-world natural resources management tasks.

Prerequisites: GEOG 373

GEOG 483 Cloud Mapping & Visualization **4 credits**

In this course, instruction is provided on foundational knowledge related to cloud mapping and visualization of geographical data. In addition, primarily through ArcGIS Online cloud platform, students will be introduced to the concepts of Hosted Layers, Web Maps, Predominance Maps, Web Apps, Story Maps, Web AppBuilder, Widgets, Geodata Visualization, ArcGIS Arcade Expressions, Custom Pop-ups, 3D Mapping and Visualization, ArcGIS Scene Viewer, Visualize Temporal Change, Real-time Mapping, Mapping Internet of Things, Landsat Explorer, and Business Analyst. Cloud mapping and visualization theories and techniques are introduced through a combination of lectures, hands-on exercises, reading materials, and individual or team projects.

Prerequisites: GEOG 373

GEOG 484 Web GIS **4 credits**

In this course, instruction is provided on foundational knowledge related to mapping and analysis of geospatial data using both open source and enterprise level Web Mapping and Web GIS platforms. Students will learn how to use HTML, CSS, JavaScript, Google Maps API, ArcGIS Online, and ArcGIS API for JavaScript to store, retrieve, manage, analyze, and display geographical information. In addition, students will be introduced to the concepts of mobile GIS technologies and Web based 3D mapping. Web mapping and Web GIS theories and techniques are introduced through a combination of lectures, hands-on exercises, reading materials, and individual or team projects.

GEOG 485 GIS Programming **4 credits**

This is an introductory course of GIS programming. It consists of lecture and laboratory components covering fundamentals of GIS programming concepts and techniques, as well as hands-on practice with Model builder and Python supported by ESRI'S ArcGIS platforms.

GEOG 491 Senior Paper **1-4 credits**

GEOG 497 (1-10) Internship **1-10 credits**
An applied work and learning experience. The student will provide a written internship report on professional practicum and the work supervisor will be consulted on how much the student has accomplished.

Prerequisites: Consent

GEOG 499 Individual Study **1-3 credits**

An assignment that is tailored to individual needs of a student. An arrangement is made that the student works on a project (term paper, readings, mapping, field investigation, GIS, or related topics).

Prerequisites: Consent

Geology

GEOL 100 Our Geologic Environment **3-4 credits**

Earthquakes, volcanic eruptions, and flooding are three examples of naturally recurring events on the Earth that ultimately influence all of our lives. This course introduces the physical features and processes of the Earth that control these events. The course has a laboratory component.

GEOL 104 Introduction to Soil Science 4 credits An introduction to the multidisciplinary field of soil science and fertility. The course will examine the basic physical, chemical, and biological properties of soils. Further topics will explore soil genesis, soil health and management, and their relationships to crop production. Field trips and lab activities will be used to explore key concepts, with emphasis on examples relevant to the soils of southern Minnesota. Local field trips included.	GEOL 310 Earth and Space Systems 3 credits An integrated, multi-disciplinary study of the Earth and the solar system. The course builds on basic concepts of astronomy, chemistry and geology to give students an enhanced understanding of the nature and relationship among the forces that control the Earth's evolution. Learning outcomes partially fulfill licensure requirements for secondary science educators. Prerequisites: AST 101, CHEM 201, GEOL 121
GEOL 107 Environmental Justice in Geoscience 4 credits From mineral formation to mountain building, this course introduces all the main areas of geologic study and places them in the context of environmental justice. We will consider the social and political backdrop of geological processes, practices, and resources, and consider how ignoring the world's complicated history has resulted in the repetition and perpetuation of practices that have disproportionately harmed diverse peoples. Lecture discussions and laboratory exercises are designed for general education and students seeking a major or minor in one of the natural sciences. Diverse Cultures: Purple	GEOL 320W Sedimentology and Stratigraphy 4 credits Focused studies of the origins and processes of transportation, deposition, burial, and diagenesis of sedimentary materials. Lab assignments focus on sedimentary material identification and analysis. Field trips required. Prerequisites: Select one course: GEOL 100, GEOL 107, GEOL 121
GEOL 108 Oceans of the World 3 credits An introduction to the world's oceans: how they work, what they contain, how they impact everything on Earth, and how humans impact them.	GEOL 330 Structural Geology 4 credits Study of the processes and results of rock deformation at scales ranging from microscopic to plate tectonic, and at conditions ranging from the Earth's surface to the deep interior. Prerequisites: GEOL 100 or GEOL 107 or GEOL 121
GEOL 121 Physical Geology 4 credits Physical geology is the study of how the earth works. From mountain building to soil erosion, this course provides an introduction to all the main areas of geologic study. Lecture discussions and laboratory exercises are designed for students seeking a major or minor in one of the natural sciences.	GEOL 401 Field Studies 1-3 credits This course is devoted to the study and practice of geological field investigations. Students will first learn basic field investigative methods. Students will then be appropriately versed in the geological history and importance of a region selected for in-depth study. Finally, students will participate in a field trip to a regional site of geologic importance over an extended weekend (4-6 days). Potential study sites may include Minnesota's North Shore and Iron Range, the Badlands and Black Hills of South Dakota, the Ozarks, or the Rocky Mountains. Prerequisites: GEOL 100 or GEOL 121 and GEOL 122
GEOL 122 Earth History 4 credits An examination of the development and evolution of life on earth. In addition to reviewing the range of life forms and global climates existing on earth during various times in its geologic past, we will also look at how global industrialization could lead to the earth's next period of mass extinction. Weekly laboratory assignments help illustrate principles discussed in lectures.	GEOL 410 Glacial Geology 3 credits Study of the origin, composition, texture, morphology, and stratigraphy of glacial deposits. Topics include the geologic record of glaciation, techniques used to reconstruct histories of glaciation, glacial depositional systems, provenance of glacial sediments, influence of glaciation on soil texture, and interpretation of glacial geologic maps. Emphasis will be placed on description and interpretation of glacial features in southern Minnesota. Field trips required. Prerequisites: GEOL 100 or GEOL 107 or GEOL 121
GEOL 201 Elements of Mineralogy 4 credits Examination of the elemental composition and crystal structure of various common minerals. Laboratory time is spent practicing techniques of identifying crystals and minerals. The importance and occurrence of many economic minerals is also covered thoroughly in this course. Prerequisites: GEOL 100 or GEOL 107 or GEOL 121	GEOL 430 Intro to Geophysics and Seismology 3 credits Comprehensive survey of geophysical methods utilized in geologic resource exploration, and basic principles of applied seismology in industry. Prerequisites: GEOL 121, GEOL 201, GEOL 122
GEOL 291 Introduction to Water and Soil Analysis 2 credits Introduction to laboratory analyses of aqueous solutions and soils in support of civil engineering or geological applications. Includes techniques of analysis of water and soil samples. Water analysis includes biological and chemical oxygen demand, corrosion, pH, phosphorus, chlorine, VOCs, nitrogen, hardness, turbidity, thermal measurement and flow tracing. Soil analysis includes pH, loss on ignition, redox, and fertility.	GEOL 440 Geology Field Camp 4-8 credits Geologic field mapping and interpretation in diverse settings. Course is offered by universities throughout the U.S. and elsewhere. Prerequisites: GEOL 121, GEOL 122, GEOL 201, GEOL 320W, GEOL 330
GEOL 302 Petrology 4 credits Study of the compositions and origins of igneous, sedimentary, and metamorphic rocks in a plate tectonic context. Topics include mineral optics and geochemistry. Lab portion of course emphasizes identification and study of rocks. Prerequisites: GEOL 201	

GEOL 449 Applied Soil Science and Surface Hydrology 4 credits
The application of geologic data and principles to problems created by human occupancy and use of the physical environment. Lecture and laboratory topics include soil classification and conservation, hazardous waste site evaluation and remediation, and living with geologic hazards.

Prerequisites: GEOL 100 GEOL 104 or GEOL 107 or GEOL 121

GEOL 450 Hydrogeology 3 credits
This course introduces physical and chemical studies of hydrogeology. The main areas of discussion will include the physical and chemical attributes of aquifers, movement of ground-water and solute through soils and rocks, and reactions between earth materials and pollutants in ground-water systems. The class includes extensive use of MODFLOW and MT3D, the two most commonly used groundwater modeling programs currently available.

Prerequisites: GEOL 100 or GEOL 107 or GEOL 121

GEOL 460 Soil Biogeochemistry 3 credits
Biogeochemical processes specific to soil and engineered sediments, including applications of solubility, adsorption/desorption, ion exchange, oxidation/reduction, acidity, alkalinity. Discussion of problems related to environmental degradation, plant nutrition, soil genesis, and element cycling (e.g. P, N, C). Structural chemistry, origin/identification of crystalline soil clay minerals, and soil organic matter will be covered in context with the mechanisms for reactivity in the soil environment. Prerequisites or instructor consent.

Prerequisites: GEOL 104, and CHEM 191 or CHEM 201

GEOL 490 Workshop 1-4 credits
GEOL 495 Seminar 2 credits
Selection of geoscience topics relevant to regional applications and current research. Activities may include guest speakers, student research presentations, directed readings in peer-reviewed literature, career panels, and job application development.

Prerequisites: GEOL 201

GEOL 497 Internship 1-10 credits
Internships allow students to apply knowledge and skills learned through undergraduate geoscience classes to real-world problems. Students will work with faculty to secure suitable employment and when finished, students will develop a written report of professional practicum that explores the relationships that exist among collegiate lessons and workplace tasks. Evaluation will be based on the content and presentation of the report as well as consultations with the internship supervisor.

GEOL 499 Individual Study 1-5 credits

German

GER 101 Elementary German I 4 credits
Introduction to German for students with little or no language experience.

GER 102 Elementary German II 4 credits
Prerequisites: GER 101 or equivalent

GER 150W The German-Speaking Countries: An Interdisciplinary Introduction 4 credits

This course offers an interdisciplinary introduction to the German-speaking countries (Germany, Austria, Switzerland, Liechtenstein); it will provide an overview of their geography, history, culture, society and current political situation in comparison to the U.S. Diverse Cultures: Purple

GER 201 Intermediate German I 4 credits
A review of German structure and its application to reading, conversation, and composition.

Prerequisites: GER 102 or equivalent

GER 202 Intermediate German II 4 credits
Prerequisites: GER 201 or equivalent

GER 280W Parallel Worlds: Exploring Cultures & Symbols 4 credits
This course explores a wide range of cultural topics such as race, gender, human rights, social conflict, mythology, imaginary worlds, etc. Topics vary every semester and will be explored from a global perspective involving at least 4 cultures (e.g. Dakota, German, Francophone, Scandinavian, Hispanic, Lusophone, etc.). The course is taught in English through the lens of literary and cultural criticism with the focus on German studies, and exposes students to international and diverse points of view that prepare them to be global citizens. Diverse Cultures: Purple

GER 293 Supervised Study Abroad: Intermediate 1-4 credits
GER 299 Individual Study 1-4 credits
Prerequisites: as appropriate for level of project

GER 340 German Topics in Language 1-4 credits
Topics will vary and course may be repeated for credit. Language topics include pronunciation and intonation, advanced grammar, etc. The focus is on advanced oral or written communication.

Prerequisites: Two years of university level German or equivalent.

GER 341 German Composition and Conversation 4 credits
Intensive practice in speaking and writing for students who have completed the intermediate sequence or equivalent.

Prerequisites: completion of GER 202 or equivalent.

GER 342 Selected Readings 1-4 credits
Discussion and analysis of major themes and movements based on selected readings from representative authors from the German-speaking world.

Prerequisites: Completion of GER 202 or equivalent

GER 343 German Civilization 1-4 credits
Major cultural and historical aspects of German from ancient times to the present.

Prerequisites: Completion of GER 202 or equivalent

GER 393 Supervised Study Abroad 1-6 credits
Study for credit must be approved by the department prior to departure.
Prerequisites: Intermediate Sequence

GER 441 Conversation and Composition 4 credits
Intensive practice in speaking and writing German.
Prerequisites: Completion of at least one 300 level course in German.

GER 442 German Literature **1-4 credits**
Topics vary and course may be repeated if a different topic/genre is the focus. Major writers from German speaking countries. Genres include novel, poetry, theatre, short story, etc.

Prerequisites: Completion of readings GER 302 or equivalent

GER 443 Topics in German Studies **1-4 credits**
The course deals with the complex cultural traditions and political histories of German-speaking countries in Central Europe, such as the metropolis Berlin, the Holocaust, minority voices. Topics vary and the course may be repeated if a different topic is the focus. Fall, Spring

GER 445 Topics in German Linguistics **1-4 credits**
Topics may vary. Course may be repeated for credit. Discussion and analysis of German phonetics and syntax and historical linguistics, for example.

Prerequisites: Completion of a least one 300 level German course.

GER 460 Topics in German Cinema **4 credits**
The course explores 20th and 21st century German film in historical, social, cultural contexts and events. Topics may be a survey, or concentration on Weimar Cinema, New German Cinema, East German Cinema, transnational cinema. Topics vary. Course may be repeated.

GER 490 Senior Capstone Project **1-4 credits**
An individual project by German majors or minors that demonstrates the ability to focus on a specific topic or question in-depth in the field of German culture and literature studies. Approval required by a designated advisor in the German program.

Prerequisites: GER 340, GER 341, GER 342, GER 343, GER 441. Student has to be admitted as a German major or minor and of senior standing.

GER 493 Supervised Study Abroad: Advanced **1-6 credits**
Study for credit must be arranged by contract prior to departure.

Prerequisites: Experience appropriate for level of credit

GER 497 Internship **1-6 credits**
Prerequisites: Experience appropriate to project

GER 499 Individual Study **1-4 credits**
Prerequisites: As appropriate for level of project

Health Science

HLTH 101 Health and the Environment **3 credits**
An introduction to the dimensions of wellness; physical, emotional, occupational, intellectual, financial, interpersonal, cultural, environmental, and spiritual health of the individual.

HLTH 102 Health Promotion Competencies for the Community Health Worker **2 credits**
Focuses on the role of the Community Health Worker in health promotion and disease prevention and/or management, including cultural navigation, social determinants of health, connections to resources, and educating and supporting clients and families.

Prerequisites: HLTH 101

HLTH 201 The Community Health Worker: Role, Advocacy, Outreach, and Resources **3 credits**
Defines the role of the Community Health Worker (CHW) as a liaison, connecting clients and appropriate community resources, based on familiarity with health-related needs of the communities and cultural considerations for which they serve. Explores strategies for personal safety in relation to home visits, and an understanding of the value of self-care, and personal wellness.

HLTH 202 Health Communication, Teaching, and Capacity Building **3 credits**
Introduces concepts of verbal and non-verbal communication required for the Community Health Worker (CHW) to effectively interact with clients, their families, and healthcare providers of all backgrounds. Students apply skills such as active listening and motivational interviewing, to empower clients to become self-sufficient in achieving personal health goals. This course also focuses on the CHW's role as a teacher to increase the capability of the community and the client to access health and social services.

HLTH 203 Documentation, Legal, and Ethical Issues in Community Health Work **3 credits**
Focuses on the legal and ethical dimensions of the Community Health Worker's (CHW) role. Included are boundaries of the CHW position, agency policies, confidentiality, liability, mandatory reporting, and cultural issues that can influence legal and ethical responsibilities. This course also focuses on the importance and ability of the CHW to gather, document, and report client visits and other activities. The emphasis is on appropriate, accurate, and clear documentation considering legal and agency requirements.

HLTH 209 Basic First Aid & CPR **1 credits**
This course provides the knowledge and skills necessary to recognize and respond appropriately to cardiac, breathing, and first aid emergencies in order to provide immediate care to an injured or ill person, which include performing CPR/AED and first aid, and to decide whether advanced medical care is needed. This course includes a basic level of First Aid and CPR/AED certification, along with certification in bloodborne pathogens.

HLTH 210 Emergency Medical Responder First Aid & CPR **3 credits**
This course provides the knowledge and skills necessary to respond and perform in an emergency to help sustain life, reduce pain, and minimize the consequences of injury or sudden illness. This course includes an advanced level of First Aid certification, including bloodborne pathogens, and all aspects of cardiopulmonary resuscitation and automated external defibrillation (CPR/AED) for the Emergency Medical Responder.

HLTH 211 Human Sexuality in a World of Diversity **3 credits**
This course is an overview of Human Sexuality with special emphasis on how sexuality relates to marginalized populations. This course requires a supervised fieldtrip. Diverse Cultures: Purple

HLTH 212 Consumer Health **3 credits**
This a course designed to examine health products, services, and information from the consumer's perspective. Emphasis will be placed on those factors that influence and ultimately determine which products, services, and information sources that you will either accept or reject.

HLTH 225 Introduction to Alcohol and Drug Studies **3 credits**
This course provides information on a variety of topics related to chemical use, abuse and dependency. Students will be exposed to chemical dependency counseling, assessment and intervention techniques. Different drug classifications will be discussed in detail. Counselor core functions and ethics will be discussed also.

HLTH 240 Drug Education 3 credits

Addresses drugs and drug use from psychological, behavioral, pharmacological, historical, legal and clinical perspectives - while examining the effects of drug use on personal health and social functioning.

HLTH 260 Introduction to Applied Health Science 3 credits

HLTH 260 Introduction to Applied Health Science is required of all Applied Health Science majors and minors. This is the foundation class for the professional preparation of health educators. The course explores the knowledge, skills, and competencies of health educators in various settings.

HLTH 295 Professional Preparation in Health Careers 1 credits

Prepares students for the workforce and advanced graduate studies within the Applied Health Sciences.

HLTH 296 Internship: Community Health Worker 1-2 credits

Supervised practical experience (80 hours) that allows opportunities for the student to prepare for independent work in the Community Health Worker (CHW) role.

Prerequisites: HLTH 101, HLTH 201, HLTH 202, HLTH 203

HLTH 311 Family Life & Sex Education 3 credits

Explores biological, physiological, and sociological perspectives of human sexuality. The course examines personal and family relationships and addresses family life and sex education teaching methods for school and community settings.

HLTH 315 Holistic Health and Wellness 3 credits

This course presents a study of the essential nature and characteristics of total health. The course explores dimensions of mental, physical, social, and spiritual wellbeing. Various approaches to holistic health and wellness are considered.

HLTH 320 School Health Education 3 credits

This course provides School Health teaching majors the knowledge, skills and dispositions they will need to be a part of a coordinated school health program team and teach comprehensive school health education in middle/junior and senior high schools. Spring

HLTH 321 Medical Terminology 3 credits

For health care personnel, emphasis on spelling, pronunciation and meaning.

HLTH 360 Theories and Models of Health Education 3 credits

Introduces theories and models in the context of health education. Examines approaches to health education program planning as well approaches to explain and predict health behavior and their application to interventions in health education. NOTE: HLTH 360 may be taken concurrently with HLTH 260 with instructor permission.

Prerequisites: HLTH 260

HLTH 361W Health Communication and Advocacy 4 credits

Health Communication and Advocacy focuses upon the development of communication and advocacy skills for the health educator. Identifying credible sources, communicating public health information, health media campaigns, health advocacy; written and verbal communication skills emphasized.

Prerequisites: HLTH 101, HLTH 360

HLTH 370 Multicultural Topics for Addictions Professionals 3 credits

This course provides an understanding of the multicultural aspects of addiction and addiction treatment. Multiculturalism is a critical topic to examine in relation to addictions counseling as our clients' race, ethnic identity, sexual orientation, socioeconomic status, age, gender identity, or disability status can impact the course of their addiction and treatment. In this course, students will develop cultural self-awareness and sensitivity to their cultural background and experiences. They will examine cultural influences as they intersect with the substance use and mental health disorders. Developing cultural competence in addictions counseling knowledge and skills is emphasized.

Prerequisites: HLTH 225

HLTH 371 Core Functions of Addiction Professionals 3 credits

The purpose of this class is to provide students with an overview of the 12 core functions of licensed alcohol and drug counselors (LADCs). These core functions include client screening, intake, orientation, assessment, treatment planning, counseling, case management, crisis intervention, client education, referral, record-keeping and reporting, and consultation. Students will be taught decision making models related to screening and intake of clients, diagnostic and treatment planning protocols, and will develop writing skills related reports and record keeping. Students will understand the importance of the core functions of the addictions professional and their integration into the daily work of an LADC.

Prerequisites: HLTH 225

HLTH 372 Adolescent Addictions 3 credits

This course is designed to help students understand adolescent substance use disorders from a developmental perspective. The developing adolescent brain and the behavior associated with it will be examined as well as the risk and protective factors these present. The course will overview current drug trends and the social climate that contributes to these trends. Evidenced based treatment interventions and substance abuse prevention will also be examined.

Prerequisites: HLTH 225

HLTH 373 Individual Counseling Skills for Substance Use Disorders 3 credits

The focus of this course is to introduce students to basic counseling skills to be used with clients dealing with substance use disorders. It provides an overview of addiction counseling theory and practice, counseling ethics, documentation, as well as culturally appropriate models for counseling. It includes examination and practice of a variety of modalities and techniques central to helping others across a range of issues related to substance use disorders. Specific skills covered include developing rapport, building empathy and active listening, self-disclosure, immediacy, reflecting and paraphrasing, challenging, etc. Students will demonstrate skills in various exercises, role plays, video-recording, and self-assessment.

Prerequisites: HLTH 225

HLTH 374 Group Counseling Skills for Substance Use Disorders 3 credits

The focus of this course is on effective facilitation of various types of groups relevant to treating individuals with substance use disorders. Topics include client orientation, group formation, functions of various group types, application of theoretical frameworks, and documentation. Students will apply core concepts from the course and demonstrate skills by participating in structured training group activities.

Prerequisites: HLTH 225

HLTH 380W Health Education Planning, Implementing, and Evaluating 1 **3 credits**

This course requires students to plan a health promotion and health education program. Skills include assessing needs, determining objectives, identifying measurement and intervention strategies, and developing an evaluation plan. HLTH 361W may be taken concurrently with HLTH 380W with instructor permission.

Prerequisites: HLTH 360, HLTH 361W

HLTH 400 Women's Health **3 credits**

This course explores current issues, controversies and concerns affecting women's health. Relationships between social, cultural, psychological, environmental and physical factors of women's health status are examined.

HLTH 406 Ethics and Professionalism for Addictions Professionals **3 credits**

The focus of this course is on the foundations of ethics and professionalism for addictions professionals. The course will cover professional and ethical codes as well as topics related to continued development as a professional.

Prerequisites: HLTH 225

HLTH 407 Pharmacology for Alcohol and Drug Professionals **3 credits**

This course provides information on characteristic and classifying information, pharmacology, pharmacokinetics, pharmacodynamics, behavioral effects, and pharmacotherapy options for drugs of abuse. The course will focus on the application of topics in alcohol and drug professional settings.

Prerequisites: HLTH 225

HLTH 408W Theories and Methods for Addictions Professionals **3 credits**

This course explores counseling theories and strategies and how they can be applied to clients in alcohol and drug treatment programs. The course also provides an overview of primary functions of addictions professionals and methods to deliver effective services.

Prerequisites: HLTH 225

HLTH 410W Current Health Issues **3 credits**

An in-depth review of significant current health concerns and controversies in health science using the elements of reasoning as the framework for critiquing the issues.

HLTH 420W Health Teaching Methods **3 credits**

This course provides School Health teaching majors the knowledge and skills they will need to be a part of a coordinated school health program team and teach comprehensive school health education in middle/junior and senior high schools.

Prerequisites: HLTH 320

HLTH 441 Death Education **3 credits**

Explores the relationship of death concerns to the process of meaningful living. Uses a variety of learning strategies to examine death attitudes, values and related behaviors.

HLTH 450 Environmental Health **3 credits**

To promote identification and analysis of environmental influences upon health status. Health concerns related to residential, occupational, and other environments are explored. Problems pertaining to air, water, solid waste, housing, land use, toxic waste, and sanitation are addressed.

HLTH 451 Emotional Health and Stress **3 credits**

Emphasis is on recognition of, and enhancing awareness about, how stress affects human health and performance. Stress management techniques such as relaxation, effective communication, cognitive-behavioral approaches, eating behaviors, regular exercise, and time management are explored.

HLTH 454 Chronic and Infectious Diseases **3 credits**

The purpose of this course is to develop the knowledge and understanding of the causes, symptoms and methods of controlling and preventing chronic and infectious diseases. Primary and secondary prevention strategies will be identified. Emphasis will be placed on those behaviors that foster and those that hinder well-being.

HLTH 455 Health and Aging **3 credits**

This course investigates the physical and mental health concerns of the aging process. Explores specific health problems confronting older persons, and examines preventive health behaviors and health maintenance practices.

HLTH 456 Assessment and Diagnosis of Substance Use Disorders **3 credits**

This course is designed to provide students with practical knowledge and application techniques in assessing an individual with a chemical use/dependency problem. Various assessment techniques will be presented and discussed as to appropriate utilization. This course meets the criteria or Rule 25 training in Chemical Dependency Assessment.

Prerequisites: HLTH 225

HLTH 457W Transdisciplinary Research in Health-Related Fields **3 credits**

This course will explore transdisciplinary research design with emphasis related to the areas of allied health and nursing sciences and disciplines. Basic overview of research methodologies commonly utilized in health sciences and approaches to transdisciplinary research will be explored through review of original research. Students will be required to produce and revise scientific writing with specific focus on inter/transdisciplinary studies. Team-based problem centered research questions will be developed and investigated using transdisciplinary methodology with current health-related issues.

HLTH 459 Critical Topics in Health **1-3 credits**

An in-depth study of specific topics of current interest in the Health Science discipline.

HLTH 460 Introduction to Epidemiology **3 credits**

Examines the philosophy and rationale of current epidemiological practice. Requires the application of epidemiological techniques to selected health concerns. Explores the interaction of agent, host and environment with the emphasis on application of principles of prevention.

HLTH 465 Public Health and Healthcare Systems **3 credits**

Addresses the history, organization, influences, and delivery of healthcare in the United States (U.S.) and abroad. A focus will be on analyzing the factors that have shaped the healthcare system, including the U.S. Constitution, compared to other parts of the globe. Additional focus will be placed on the legal and social justice framework for urgent public health issues.

HLTH 466 Global Health **3 credits**
This course focuses on the determinants of health, the concept of culture, and the intersection of health issues, culture, and health status. Linkages between health and development are addressed and research methods instrumental for identifying relationships between culture and health are discussed. The course examines diverse strategies for measuring health and explores how public health efforts (domestic and global) benefit from understanding and working with cultural processes. Emphasis is placed on the burden of disease, risk factors, populations most affected by different disease burdens, and key measures to address the burden of disease in cost-effective ways. Diverse Cultures: Purple

HLTH 467 Public Health Law **3 credits**
An examination of the judicial system and the development, enactment and enforcement of laws as they relate to the public's health.

HLTH 469 Co-Occurring Disorders **3 credits**
The focus of this course is on assessment and treatment of persons with coexisting mental disorders as well as chemical dependency.

Prerequisites: HLTH 225

HLTH 475 Biostatistics **3 credits**
Introduction to statistical analysis as applied to the health sciences. Examines concepts and methods of statistical procedures applied to health problems and issues.

Prerequisites: MATH 110, STAT 154, Or any other mathematics course higher than MATH 110.

HLTH 477 Behavior Change Foundations and Strategies **3 credits**
Behavior Change Foundations and Strategies (3 semester credits) is a course that focuses upon the complexity of health behavior change and the skills necessary for a health promotion professional to assess, plan, and evaluate behavior change interventions for individuals and communities. Health behavior change theories and strategies will be discussed. Topics covered in class will include: behavior modification, goal setting, self-management, coping skills, and social support. Emphasis will also be given to the impact of policy and environmental influences on behavior.

HLTH 480 Health Education Planning, Implementing and Evaluating 2 **3 credits**
This course includes health program evaluation and research, with emphasis on evaluation models and approaches, qualitative and quantitative methods, process and summative evaluation, logic models, and dissemination of results.

Prerequisites: HLTH 380W

HLTH 482W Administration and Grant Writing in Health Education **4 credits**
Focuses on entry-level competencies related to the administration and management of health education programs. These include obtaining acceptance and support for programs, leadership, managing human resources, facilitating partnerships in support of health education, grant writing, and training individuals involved in the implementation of health education.

Prerequisites: HLTH 380W

HLTH 488 Worksite Health Promotion **3 credits**
The course examines approaches to promote health and prevent disease and injury, and explores other health related issues at the workplace. Assessment, planning, implementation and evaluation strategies are addressed. Model programs are reviewed and analyzed.

HLTH 491 Directed Research in Health Science **1-6 credits**
Supervise individual research or investigation in Health Science under guidance of a faculty mentor. Culminating research project with paper and/or presentation required.

HLTH 492 Instructional Internship **1-5 credits**
A university-based experience related to pedagogy for Health Science majors under the guidance of a faculty member. Faculty permission required.

HLTH 495 Senior Seminar in Health Education **1 credits**
A seminar for students preparing for a career in Health Education. Emphasis on: reviewing coursework, identifying and securing an internship site, and exploring employment opportunities within community organizations, public health agencies, worksites, healthcare facilities, and educational settings for health education.

Prerequisites: HLTH 380W

HLTH 496 Internship: Applied Health Science **1-9 credits**
A concentrated pre-professional work experience for those students preparing for a career in the Applied Health Sciences. Students must schedule placement one semester in advance.

Prerequisites: HLTH 260, HLTH 295, HLTH 360, HLTH 361W, HLTH 380W, HLTH 454, HLTH 460, HLTH 480, HLTH 482W

HLTH 497 Internship: Alcohol and Drug Studies **1-12 credits**
A concentrated pre-professional experience for those preparing for a career in chemical dependency counseling. All course work must be completed prior to placement. Student must schedule placement one semester in advance.

Prerequisites: Completion of all Alcohol and Drug Studies required core courses.

HLTH 499 Individual Study **1-6 credits**
An in-depth study on a topic of particular interest to the student and project supervisor.

History

HIST 155 History of the Family in America **3 credits**
This course is designed to provide an overview and analysis of the historical experiences of the family in the United States from earliest settlement to the present in order to aid students in understanding the contemporary situation of the family in American society. Diverse Cultures: Purple

HIST 170 Ancient World Civilization to 1500 **4 credits**
A history of the physical, political, cultural, social, and economic foundations of world civilizations to 1500.

HIST 170W Ancient World Civilization to 1500 **4 credits**
A history of the physical, political, cultural, social, and economic foundations of world civilizations to 1500. Same content as HIST 170. Students may not take both HIST 170 and HIST 170W for credit.

HIST 171 World Civilization, 1500-Present **4 credits**
Review of major changes in World Civilizations since 1500. Diverse Cultures: Purple

HIST 171W World Civilization, 1500-Present 4 credits
Review of major changes in World Civilization since 1500. Same content as HIST 171. Students may not take both HIST 171 and HIST 171W for credit. Diverse Cultures: Purple

HIST 180 European History to 1648 4 credits
A survey of European civilization from Egypt to the end of the Thirty Years War.

HIST 180W European History to 1648 4 credits
A survey of European civilization from Egypt to the end of the Thirty Years War. Same content as HIST 180. Students may not take both HIST 180 and HIST 180W for credit.

HIST 181 European History: 1648 to the Present 4 credits
A survey of European history from the end of the Thirty Years War to the present.

HIST 181W European History: 1648 to the Present 4 credits
Survey of European history from the end of the Thirty Years War to the present. Same content as HIST 181. Students may not take both HIST 181 and HIST 181W for credit.

HIST 190 United States to 1877 4 credits
This course is designed to provide an overview of America's political, social, economic, and cultural development from earliest colonization to 1877. Diverse Cultures: Purple

HIST 190W United States to 1877 4 credits
This course is designed to provide an overview of America's political, social, economic, and cultural development from earliest colonization to 1877. Same content as HIST 190. Students may not take both HIST 190 and HIST 190W for credit. Diverse Cultures: Purple

HIST 191 United States Since 1877 4 credits
A survey of American History from the end of Reconstruction to the present with a special emphasis on political and social developments. Diverse Cultures: Purple

HIST 191W United States Since 1877 4 credits
This course is designed to provide an overview of America's political, social, economic, and cultural development from 1877 to the present. This course has the same content as HIST 191. Students may not take both HIST 191 and HIST 191W for credit. Diverse Cultures: Purple

HIST 232 Islamic Civilizations 4 credits
This course provides an historical and interdisciplinary approach to the study of the Islamic world. The course examines Islam and Islamic cultures within a global context, from its beginnings through the contemporary period. Diverse Cultures: Gold

HIST 235 World War II and the Holocaust 4 credits
Examines the causes, course and legacy of World War II and the Holocaust, including the rise of fascism; European, Japanese, and U.S. imperialism in Asia; the course of the war in Europe and Asia; the home fronts of the belligerent countries; and the march toward the final solution. This course will focus in on a global perspective of these events and discuss the impact it had on various ethnic, racial, religious and gender groups. Diverse Cultures: Purple

HIST 244 A History of Taboos and Transgressions 4 credits
This course is a historical investigation of taboos in America across time, cultures, and communities. Together, we explore how a range of taboos came to be, how they vary, where the power of taboos come from, and how they are often connected to ideas of gender, sex, race, and class. We will also explore how taboos have been transgressed, challenged, and evolved over time. Diverse Cultures: Purple

HIST 246W Sports and Games in History 4 credits
This class looks at the history of sports and games across the span of global history! Progressing through the course of human history, this class will discuss recreation, organized sports, professional sports, and the advent of modern video games. Students will develop critical thinking skills and engage with this fascinating topic by developing oral and written communication skills. This class will engage with human diversity, both inside and outside of the US through the lens of sports and games. Diverse Cultures: Purple

HIST 250 Riot and Revolution in History 4 credits
Through a series of historical simulations, students develop communication and oral reasoning skills by researching, writing, and participating in debates about key global political events that changed the course of history. Students will study primary and secondary sources related to the historical events. Students will draft, rewrite, and defend oral arguments based on their research, and they will conduct debates with other students in class.

HIST 260 Introduction to Traditional East Asian Civilization 4 credits
A general survey of premodern East Asian civilizations -- particularly China and Japan -- from the beginning to 1800. Topics include the formation and development of East Asian civilizations and the evolving East Asian engagement with the natural environment before the 19th century. Diverse Cultures: Purple

HIST 260W Introduction to Traditional East Asian Civilization 4 credits
A general survey of premodern East Asian civilizations -- particularly China and Japan -- from the beginning to 1800. Topics include the formation and development of East Asian civilizations and the evolving East Asian engagement with the natural environment before the 19th century. Diverse Cultures: Purple

HIST 268 History and American Democracy 4 credits
Students will develop communication, reasoning, and collaborative skills through history-based exercises interrogating diverse and changing understandings of democracy in what is now the United States. Students will analyze historical sources highlighting American traditions of disagreement as well as creative compromise over the character and features of self-government, the narratives by which to understand the past, and the legacies and lessons of the past for the present. The course puts current divisions among Americans into historical context to help students widen their perspectives, work productively across differences, and learn to substantiate their opinions on public issues with historical and contemporary evidence.

HIST 280 History in Black and White 4 credits
This class traces the evolving history of race from its creation in early modern Europe to political uses of this history in the twenty-first century United States. Students will learn about whiteness and blackness as social constructions that implicated the trans-Atlantic slave trade, patterns of imperialism, systems of oppression, and notions of beauty in western society. Students will also be involved in historical commemoration and/or racial justice projects involving communities of color in Minnesota to reflect on how the historical context informs these activities and how history continues to be used politically. Diverse Cultures: Gold

HIST 300 Study Abroad/Study Away Historical Tour 1-4 credits
Historical study tours provide students with the opportunity to study at an off-campus location in a tour or program organized by a History professor. In addition to the off-campus experience, the course may also include readings, assignments, and class meetings on campus before or after the tour.

HIST 302 World History: An Overview	4 credits	HIST 408 Women and Gender in European History	4 credits
Review of World History as a field of study.		A history of women from Classical Greece and Rome to the modern era. An analysis of the changing concepts of gender relations within a study of women as individuals and as members of socio-economic, ethnic, kin, and religious groups. Diverse Cultures: Purple	
HIST 368 U.S. Constitutional History	4 credits	HIST 410 The Witch Hunts in European History	4 credits
This course examines U.S. constitutional history from its foundations to the current day. Students will read and analyze legal material and explore how U.S. constitutional interpretations changed over time; factors affecting change and resistance; and how constitutional change both reflected and shaped U.S. society, culture, politics, and economics.		A history of the witchcraft phenomenon in Europe from the Middle Ages to 1800. The course examines the rise and decline of the European witch hunts through the history of religion, politics, law, gender, sexuality, and social life. Diverse Cultures: Purple	
HIST 369 Sex in American History	4 credits	HIST 414 Early England to 1603	4 credits
This course moves thematically through the history of America from pre-European invasion to the 21st century and examines the history of American conceptions of sex, sexual desire, "normal" behaviors, and various belief systems held by different religious, political, and cultural groups. The class will also examine the ways sex, sexuality, and gender have been regulated and represented via legal, political, and social forces across time. Diverse Cultures: Purple		England from ancient times to the death of Elizabeth I.	
HIST 390 Readings for Honors: United States History	1 credits	HIST 415 England since 1603	4 credits
Students will read primary and/or secondary sources in United States history and complete writing assignments to prepare for future graduate study.		Political, social and economic development of England and Great Britain since the death of Elizabeth I.	
Prerequisites: Permission of instructor.		HIST 419 France since the Revolution in 1789	4 credits
HIST 391 Reading for Honors: European History	1 credits	Review of French history from the Revolution of 1789 to the present, including such topics as origins and course of the Revolution, Napoleon, Louis XVIII to Third Republic, World War I, World War II and France since 1945.	
Students will read primary and/or secondary sources in European history and complete writing assignments to prepare for future graduate study.		HIST 424 Scandinavian History	4 credits
Prerequisites: Permission of instructor.		Political, economic, social, cultural, and immigration history of the Scandinavian countries, including major themes in the mass migration and history of Scandinavians in America. Emphasis on the period, 1500-present.	
HIST 392 Reading for Honors: World History	1 credits	HIST 430 United States: Selected Topics	1-4 credits
Students will read primary and/or secondary sources in World history and complete writing assignments to prepare for future graduate study.		This seminar course will deal with a specific aspect of United States history as announced by the department.	
Prerequisites: Permission of instructor.		HIST 431 European History: Selected Topics	1-4 credits
HIST 401 Classical World of Greece & Rome	4 credits	This seminar course will deal with a specific aspect of European history as announced by the department.	
The history of Greece and Rome stressing political, social and economic institutions and cultural and intellectual achievements.		HIST 432 World History: Selected Topics	1-4 credits
HIST 402 Foundations of Judaism, Christianity, & Islam	4 credits	This seminar course will deal with a specific aspect of World History as announced by the department.	
A history of western monotheistic religions and their interactions with the secular world and each other from the beginnings of Judaism to the Crusades.		HIST 434 East Asian History: 1800-1945	4 credits
HIST 403 The Middle Ages	4 credits	A comparative history of the Chinese and Japanese nations from the 19th century to 1945.	
A history of the Middle Ages stressing political, social and economic interactions and cultural achievements.		HIST 435 East Asian History: 1945 - The Present	4 credits
HIST 406 Renaissance and Reformation Europe	4 credits	A comparative history of the rise of the Chinese and Japanese nations from 1945 to the present. Diverse Cultures: Purple	
European history from the later Middle Ages to the end of the Thirty Years' War (c. 1300-1648). Students will examine the intellectual, religious, and cultural developments in Western-Europe, with special attention given to social life and popular culture.		HIST 436 History of East Asian Relations with the United States	4 credits
HIST 407 The Age of Absolutism and Enlightenment	4 credits	History of relations of major East Asian countries with the United States from the late 18th century to the present.	
The history of Europe from the Treaty of Westphalia to the eve of the French Revolution (1648-1789). Course emphasizes absolutism and constitutionalism, the construction of European empires, the scientific revolution and Enlightenment, and social and economic changes.		HIST 437 African History to 1800	4 credits
		Investigation of historical developments across the African continent from pre-history through the eighteenth century. Topics will include ancient empires of West Africa, the Swahili coast, the spread of Islam, the trans-Atlantic slave trade and the formation of South Africa's multi-racial society. Diverse Cultures: Purple	
		HIST 438 Modern Africa	4 credits
		Investigation of historical developments in Sub-Saharan Africa during the nineteenth and twentieth centuries. Topics will include trade with Europe and America, European colonization and African resistance, life in colonial Africa, independence movements, South Africa's apartheid state and the Rwanda genocide. Diverse Cultures: Purple	

HIST 441 Colonial Latin America 4 credits

This course traces the rise and fall of the Spanish and Portuguese Empires in America. Specific focus is given to the interactions between the European, African, and indigenous populations as they formulated societies in the Americas. Diverse Cultures: Purple

HIST 442 Modern Latin America 4 credits

This course traces the history of Latin America from the late colonial period through the present as the various countries in the region attempted to transcend their colonial past and confront the pressures of modernization and globalization. Diverse Cultures: Purple

HIST 443 The Maya, Aztecs, and Incas 4 credits

This course focuses on the rise and fall of the Maya, Aztec, and Inca civilizations. Beginning with the foundations of Mesoamerican and Andean culture and culminating with the arrival of the Spanish, we will analyze the historical development of the great societies that emerged in the Americas.

HIST 445 Pirates of the Atlantic World 4 credits

This course examines the history of the rise and decline of piracy in the Atlantic World. We will trace the evolution of various political, economic, social and cultural aspects of piracy that emerged through an analysis of the broad historical movements occurring in the early modern era. Rather than a study of the biographies of famous pirates, this course will examine how and why Atlantic piracy became so prominent and seeks to explain its significance in changing the course of world history.

HIST 446 Modern Middle East 4 credits

How do we define the Middle East? In our popular culture and media sources that we are exposed to daily, the Middle East is one of the more discussed and yet, one of the most misunderstood topics. Our goal is to both to unlearn misconceptions and to create an accurate representation of the region. Our class will start with an introduction to the region and its history and the misconceptions that are attached to it. It will then proceed from the late 18th century to the revolutionary events of recent years dubbed the Arab Spring and their aftermaths.

HIST 452 Minnesota History 4 credits

This course will examine Minnesota's social, political, and economic development from the earliest human habitation to the present.

HIST 454 Early America to 1763 4 credits

This course will examine America's political, social, economic, and cultural development from the earliest settlement of the continent by indigenous peoples to 1763, when provincial Americans began to demand more than token equality in the British Empire. Diverse Cultures: Purple

HIST 455 Revolutionary & Early National America 1763-1820 4 credits

This course will examine the social, economic, ideological, political, diplomatic, and military experiences of the United States between 1763 and 1820, in order to understand the creation of the American political nation and the culture which developed within it. Diverse Cultures: Purple

HIST 458 U.S. History 1820-1861 4 credits

This course will discuss the social, economic, and political issues from the rise of Jackson through the beginning of the Civil War. Major issues to be covered include: Jacksonian Democracy, Industrialization, Reform, Westward Expansion, Slavery, and the 1850's. Diverse Cultures: Purple

HIST 459 U.S. History 1861-1900 4 credits

This course will explore the immediate causes and consequences of the Civil War as well as the rise of an industrial/urban United States. Major issues to be covered include: causes of the Civil War, the war itself, Reconstruction, the Gilded Age, and Populism. Diverse Cultures: Purple

HIST 462 U.S. History, 1900-1945 4 credits

Reform/domestic themes and U.S. foreign policies during the Progressive Era, the "Roaring 20's," the Great Depression and the New Deal, and the two world wars. Diverse Cultures: Purple

HIST 463 U.S. History, 1945-Present 4 credits

Social, political and foreign affairs since World War II.

HIST 466 History of U.S. Foreign Relations in the Twentieth Century 4 credits

An examination of the major factors influencing U.S. diplomacy since 1900. Students will examine how influential policy makers defined their diplomatic goals, and how both domestic and external factors have contributed to America's reaction to wars and revolutions around the world. Diverse Cultures: Purple

HIST 467 Rock Music and American Society 4 credits

This course will explore the context of and impact of Rock 'N' Roll music on American society from its emergence after the Second World War to the end of the 1980s. Students will review how events and issues in American society influenced music, and how Rock 'N' Roll music influenced both American and global culture and society. Students will also investigate how the controversies surrounding Rock 'N' Roll music often reflected (and aggravated) tensions related to broader political and cultural changes in American society. Diverse Cultures: Purple

HIST 470 American Frontier 4 credits

Occupation of the area between the Mississippi and the Pacific from Spanish exploration to the late 19th century. Diverse Cultures: Purple

HIST 471 20th Century American West 4 credits

This course looks at the social, political, and economic developments that transformed the 20th Century American West. Fall Diverse Cultures: Purple

HIST 476 Comparative Slavery and Emancipation 4 credits

This course will discuss slavery and emancipation in the Atlantic World (Africa, Latin America, and the United States). Students will discover how slavery and emancipation differed in different regions and over time. Diverse Cultures: Purple

HIST 477 African American History 4 credits

This course surveys African American history from slavery to the twenty-first century. We will explore the history of enslavement, black resistance, African American culture, freedom, migration patterns, and black political thought and participation as well as how historians have interpreted and re-interpreted this history. Diverse Cultures: Purple

HIST 478 America in Vietnam 4 credits

This course will examine the Vietnam War. Students will discover how and why the U.S. became involved in Vietnam, examine the specific problems faced by American diplomats and military officials, and how the war affected American society. Diverse Cultures: Purple

HIST 481W Civil Rights in the Twentieth Century 4 credits

This course will examine the U.S. civil rights movement in the 20th century. Students will study the African American freedom movement and other civil rights campaigns to understand the basis of both oppression and civil rights in the U.S. and will apply this historical context to contemporary civil rights struggles. The course will emphasize reading, research, and writing skills.

HIST 483 American Social and Cultural History 4 credits

Topics in intellectual history or popular and traditional culture.

HIST 484 American Labor History 4 credits

An examination of the history of labor and the emergence of social welfare within the context of the modernization of western society and the diversity of the United States.

HIST 485 History of American Immigration and Ethnicity 4 credits
A historical study of the immigration and ethnic experience in America. Includes an examination of political, social, and economic changes that resulted in population movements to the U.S. and of the development of immigration laws in response to the arrival of "outsiders." Attention is given to the rise of anti-immigrant movements at various times in American history.

HIST 486 American Environmental History 4 credits
This course will examine the interaction between humans and the American environment from pre-Columbus to the present.

HIST 487 United States Women's History 4 credits
This course is designed to provide a survey and analysis of the historical experiences of women in the United States from earliest settlement by indigenous peoples to the present in order to aid students in understanding the contemporary situation of women in American society.

HIST 488 Disasters in American History 4 credits
Discussion of disasters in US history from colonial times to the present. Contemporary descriptions of the events will be reviewed as will the changing response of both the public and the government to these events.

HIST 490 Workshops 1-4 credits
Specific titles to be announced in departmental course descriptions.

HIST 495W Senior Seminar 4 credits
In this capstone course required for all history majors, students will study historical methods, professional standards, and ways to communicate history to diverse audiences. Students will actively engage in historical inquiry to complete a polished research project. Permission of the department and instructor is required.

HIST 497 Internship 1-12 credits
Students will apply historical skills and knowledge through a practical work experience at a non-profit organization, governmental agency, for-profit business, or other institution. P/N only.

HIST 499 Individual Study 1-4 credits
Advanced independent study and research. P/N only.

Honors

HONR 201 Introduction to Honors 1 credit
This course provides an orientation to the mission and core competencies of the Honors Program. Students will analyze and categorize the competency themes, identify appropriate learning goals, and develop an e-portfolio for their use in the Honors Program.

HONR 230 Honors Colloquium 1 credit
This course provides the opportunity to explore and engage in experiences, conversations, and reflections surrounding the selected colloquium topic(s). Students will learn about the topic(s) and relevant issues from a variety of disciplinary perspectives.

HONR 255 Honors Practicum 1-6 credits
Students will engage in significant learning experiences outside of the traditional classroom setting. A practicum involves both experiential and reflection components. Practicums are supervised by a faculty or staff mentor.

HONR 375 Honors Portfolio Development 1 credit
This required portfolio course intended for students in the middle of their honors program experience allows students to develop their portfolio based on experiences they have had since completion of HONR 201. Throughout the course, students will critically examine their experiences in the competency areas and reflect on what they have learned from these experiences. This course helps students prepare for HONR 475: Honors Portfolio Capstone, which students are required to take in their final year.

Prerequisites: HONR 201

HONR 401 Honors Seminar 1-4 credits
Seminars are offered by University faculty from a wide variety of disciplines. In addition, interdisciplinary seminars can be offered.

HONR 455 Honors Practicum 1-6 credits
Students will engage in significant learning experiences outside of the traditional classroom setting. A practicum involves both an experiential and reflection component. Practicums are supervised by a faculty or staff mentor.

HONR 475 Honors Portfolio Capstone 1 credit
This required course allows students to articulate where and how they have met the Honors Program Learning Outcomes.

Prerequisites: HONR 201, HONR 375

HONR 499 Individual Study 1-6 credits
To be arranged with Honors Program Director.

Human Performance

HP 102 Individualized Exercise 1 credit
This course provides small group personal training sessions (e.g., 1 to 4) ideal for sedentary students looking to begin a physical activity program in a non-competitive supportive environment. With the assistance of exercise science students enrolled in HP 486, participants will enhance their physical fitness and overall wellness.

HP 103 Fitness for Living 1 credit
Concepts and development of lifelong healthy exercise and nutritional habits.

HP 105 Beginner Swimming 1 credit
Introduction to basic swimming skills; basic rescue and water safety skills and techniques; stroke instruction in front crawl, back crawl, elementary backstroke, breaststroke, and sidestroke.

HP 106 Disc Golf 1 credit
Develop basic knowledge and appreciation through participation in the activity of disc golf.

HP 113 Introduction to Bowling 1 credit
Develop basic knowledge and appreciation through participation in the sport of bowling.

HP 114 Introduction to Billiards 1 credit
Develop basic knowledge and appreciation for the sport of billiards.

HP 117 Aerobic Conditioning 1 credit
Theory and practice of aerobic conditioning.

HP 130 Self-Defense for Women 1 credit
Includes street fighting techniques and personal safety tips.

HP 141 Introduction to Sport Management 3 credits

This course will provide an overview of the academic and professional sport management industry. Students will be introduced to the vast array of fields within the sport management industry, different job opportunities that are available, and foundational theoretical concepts. Basic professional career paths, tasks, duties, knowledge, skill sets, and challenges specific to the industry will be examined with a focus on practical examples.

HP 146 Intercollegiate Bowling 1 credit

Prerequisites: Bowling experience/averages.

HP 147 Intercollegiate Cross Country 1 credit

Open for credit to those on the intercollegiate team.

Prerequisites: Selection for team

HP 148 Intercollegiate Softball 1 credit

Open for credit only for those students who make the Minnesota State University, Mankato, team and who complete the requirements.

Prerequisites: Selection for team

HP 149 Intercollegiate Volleyball 1 credit

Open for credit only for those students who make the Minnesota State University, Mankato, team and who complete the requirements.

Prerequisites: Selection for team

HP 150 Intercollegiate Wrestling 1 credit

Open for credit to those who make the wrestling team and complete the requirements.

Prerequisites: Selection for team

HP 152 Intercollegiate Track and Field 1 credit

Open for credit to those who make the team and complete the requirements.

Prerequisites: Selection for team

HP 153 Intercollegiate Swimming 1 credit

Open for credit only for those students who make the Minnesota State University, Mankato, team and who complete the requirements.

Prerequisites: Selection for team

HP 154 Intercollegiate Football 1 credit

Open for credit only for those students who make the Minnesota State University, Mankato, team and who complete the requirements.

Prerequisites: Selection for team

HP 155 Intercollegiate Basketball 1 credit

Must be on intercollegiate roster.

Prerequisites: Selection for team

HP 156 Intercollegiate Baseball 1 credit

Class for only students on the intercollegiate baseball team. Need permission to register.

Prerequisites: Selection for team

HP 157 Intercollegiate Golf 1 credit

Open for credit to those who make the team and complete the requirements.

Prerequisites: Selection for team

HP 158 Intercollegiate Tennis 1 credit

Open for credit to those who make the team and complete the requirements.

Prerequisites: Selection for team

HP 159 Intercollegiate Hockey 1 credit

This course is admission by permission only. The course is limited to male students who are members of the Minnesota State University, Mankato, intercollegiate hockey team.

Prerequisites: Selection for team

HP 161 Intercollegiate Soccer 1 credit

Participation in NCAA II soccer.

Prerequisites: Selection for team

HP 166 Team Game Skills 1 credit

Flag/Touch Football, Softball (fast and slow pitch), Soccer, Speedball, Ultimate, Volleyball, Basketball, Team handball.

HP 170 Introduction to Sports Medicine 2 credits

This course will introduce the field of sports medicine and healthcare careers involved in sports medicine (e.g., athletic trainer, orthopedic surgeon, sports physical therapist, sports orthotist, registered sports dietitian, sports medicine physician, certified sport psychologist, licensed psychologist, sports strength and conditioning coach) and will familiarize students with majors and minors that can lead to a career in sports medicine. Students will become familiar with issues that span healthcare professions such as cultural competence, ethics, professionalism, credentialing, patient centered care and interprofessional care delivery. And students will be introduced to resources on campus that can help them accomplish their educational goals.

HP 171 Introduction to Racquetball 1 credit

Develop basic knowledge and appreciation through participation in the sport of racquetball.

HP 172 Introduction to Tennis 1 credit

Develop basic knowledge and appreciation through participation in the sport of tennis.

HP 173 Introduction to Badminton 1 credit

Develop basic knowledge and appreciation through participation in the sport of badminton.

HP 175 Fitness Activities 1 credit

Participation and increase skill knowledge through activity in body building, physical conditioning, and aerobics.

HP 176 Introduction to Pickleball 1 credit

Develop basic knowledge and appreciation through participation in the sport of pickleball.

HP 177 Introduction to Golf 1 credit

Develop basic knowledge and appreciation through participation in the sport of golf.

HP 179 Downhill Skiing 1 credit

Develop basic knowledge and appreciation through participation for the sport of downhill skiing.

HP 180 Introduction to Handball 1 credit

Acquaint students with the basic skills and rules of handball.

HP 181 Advanced Handball 1 credit

Acquaint students with advanced skills, strategies, and rules of handball.

HP 182 Aquatic Skills 1 credit Overview of aquatic skills and activities. Basic techniques and practical experience in teaching aquatic skills and activities. Prerequisites: Human Performance major or Aquatic emphasis. Ability to swim front crawl, back crawl, elementary backstroke, breaststroke, sidestroke. Developing teaching skills and curriculum.	HP 290 Psycho-Social Aspects of Sport 3 credits Examines sport from a social-psychological perspective. To identify and discuss ways in which societal values affect the character of sport and the people involved. Prerequisites: SOC 101
HP 183 Introduction to Curling 1 credit Develop basic knowledge and appreciation through participation in the sport of curling.	HP 291 Concepts of Fitness 2 credits Adult fitness, from theory to practice.
HP 190 Sport Activities 1 credit Variable content based on demand. Prerequisites: Varies depending on activity	HP 295 Fundamentals of Physical Education Activities 3 credits Fundamentals of physical education activities focuses on skill performance and analysis in a variety of physical education activities. Majors only. This course must be taken concurrently with HP 201.
HP 191 Yoga 1 credit Develop basic knowledge and appreciation through participation in yoga.	HP 301 Swimming Theory 1 credit Methods, procedures, and philosophy of coaching competitive swimming. Prerequisites: Competitive swimming experience.
HP 192 Indoor Cycling 1 credit Develop basic knowledge and appreciation through participation in the activity of spinning or cycling.	HP 302 Wrestling Theory 1 credit Methods and procedures used in coaching. Prerequisites: Wrestling experience or wrestling class.
HP 201 Introduction to Teaching Physical Education 3 credits This course will provide majors in the health and physical education program with an overview of historical, philosophical and social perspectives of physical education. Students will develop an understanding of instructional, managerial, and organizational components impacting physical education. Corequisites: HP 295	HP 303 Volleyball Theory 1 credit Methods and procedures used in coaching volleyball. Prerequisites: Volleyball experience or consent.
HP 245 Intermediate Swimming 1 credit Advanced strokes: butterfly, overarm sidestroke, trudgeon, inverted breaststroke. Competitive strokes and turns. Springboard diving. Aquatic Art. Mask and snorkel skills. Safety/rescue skills. Water exercise. Water polo. Spring Prerequisites: Front crawl, back crawl, elementary backstroke, sidestroke, breaststroke.	HP 304 Track & Field Theory 1 credit Methods and procedures used in coaching.
HP 252 Officiating Theory 2 credits The course is designed to give an overview of approximately five sports. Emphasis is placed on the philosophy behind sport officiating. Discussion involves how to get started, organization helpful to officials, learning materials, stipends to be earned, types of equipment and cost.	HP 305 Baseball Theory 1 credit Methods and procedures used in coaching baseball.
HP 257 Water Safety Instructor (WSI) 2 credits American Red Cross requirements for Water Safety Instructor (WSI) certification. Practical experiences included. Prerequisites: Swim 500 yards. Front crawl, back crawl, elementary backstroke, breaststroke, sidestroke.	HP 306 Football Theory 1 credit Course designed to teach the various techniques and philosophies of the game of football for prospective coaches. Open enrollment-male or female.
HP 260 Introduction to Exercise Science & Practitioner-based Professions 3 credits This course will introduce exercise science and practitioner-based professions (e.g., athletic trainer, biomechanist, chiropractor, exercise physiologist, medical doctor, occupational therapist, personal trainer, physical therapist, physician's assistant, podiatrist, registered dietitian, sport psychologist, strength coach). It will acquaint students with opportunities within related majors, minors, and an overview of exercise science and practitioner-based career options. Academic planning for undergraduate programs, in addition to strategies for gaining admission to exercise science and practitioner-based graduate studies programs, will be included.	HP 307 Cheerleading Theory 1 credit The course is designed to help coaches learn how to teach the technical and tactical skills of youth cheerleading.
	HP 308 Hockey Coaching Theory 1 credit The course is designed for those interested in coaching hockey at the youth and high school level.
	HP 309 Basketball Coaching Theory 1 credit Methods and procedures used in coaching.
	HP 310 Softball Theory 1 credit Methods and procedures used in coaching. Prerequisites: Softball experience or consent.
	HP 311 Cross Country Theory 1 credit Methods and procedures used in coaching.
	HP 312 Lacrosse Theory 1 credit The course designed to help coaches learn how to teach the technical and tactical skills of youth lacrosse.
	HP 313 Lifespan Motor Development 3 credits Study of lifespan motor development from prenatal through adulthood, including information on delayed development and the normal pattern of skill acquisition.

HP 314 Physiology of Exercise **3 credits**
Introductory study of the effects of both acute and chronic exercise on structure and function of the human body across the life span.

Prerequisites: BIOL 330

HP 315W Research Methods and Statistics in Exercise Science **3 credits**
Explores research methods and descriptive statistics commonly used in human performance, exercise science, athletic training, occupational therapy, and physical therapy settings. Includes developing a refined research question, conducting a review of relevant literature, designing a data collection project, and writing a research proposal.

HP 316 Tennis Theory **1 credit**
Methods and procedures used in coaching.

HP 317 Golf Coaching Theory **1 credit**
Methods and procedures used in coaching.

HP 318 Soccer Theory **1 credit**
Methods and procedures used in coaching.

HP 319 Strength and Conditioning Theory **1 credit**
This course is designed to help coaches learn how to teach effective Strength and Conditioning for youth.

HP 325 Ethics and Morality in Sport Management **3 credits**
This course will enable students to gain a deeper understanding of the moral reasoning processes of sport management professionals. Students will develop the knowledge, skills, and abilities to apply moral reasoning in dealing with ethical dilemmas in sport management.

HP 328 Pathomechanics in Sports Medicine **3 credits**
This course will prepare students to identify pathomechanics in physically active people. Pathomechanics are motions leading to injury. Students will understand the foundational concepts of biomechanics and kinesiology, including the origin, insertion, action, and innervation of muscles and how to identify kinetic and kinematic forces that may result in injury during physical activity. Students will then apply this knowledge in an analysis of motion to identify potentially injury causing mechanics.

HP 330 MN PE Standards & Benchmarks **2 credits**
This course is designed to develop in-depth knowledge about Minnesota State Physical Education Standards and Benchmarks across the psychomotor, cognitive, and affective learning domains.

Prerequisites: HP 202, HP 295

HP 331 Game Forms I **2 credits**
This course is designed to focus on three areas related to physical education, including net/wall games, aquatics, and fitness activities. Students will be expected to participate in these three focus areas while also demonstrating cognitive understanding for appropriate teaching practices in each.

Prerequisites: HP 201, HP 295

HP 332 Game Forms II **2 credits**
This course is designed to focus on three areas related to physical education, including invasion games, dance & rhythmic activities, and individual performance activities. Students will be expected to participate in these three focus areas while also demonstrating cognitive understanding for appropriate teaching practices in each.

Prerequisites: HP 201, HP 295

HP 333 Introduction to Developmental Adapted Physical Education **3 credits**
Introduction to teaching physical education for students with disabilities. Concepts include, but not limited to, history, legal mandates, due process, categorical disabilities, & universal design. Fieldwork hours required.

HP 334 Game Forms III **2 credits**
This course is designed to focus on three areas related to physical education, including outdoor pursuits, fielding/striking games, and target games. Students will be expected to participate in these three focus areas while also demonstrating cognitive understanding for appropriate teaching practices in each.

Prerequisites: HP 201, HP 295

HP 340 Prevention and Care **2 credits**
Basic recognition, prevention, and care of injuries/illnesses suffered by athletes and other physically active individuals. Designed for coaching, physical education, and sports medicine minor students.

Prerequisites: HLTH 210

HP 350 Sport Business and Professional Development **3 credits**
The Sport Business and Professional Development course is designed to improve the ability of students to be professional in the work place, describe their accomplishments, build their resumes, and sell their idea/themselves in situations like professional networking, company meetings, response to proposals for services, and interviews. It teaches verbal and written communication skills, professional etiquette, service learning, multicultural awareness, and workplace integration for new jobs.

HP 360 Foundations of Sport Management **3 credits**
This course will provide an overview of the academic and professional sport management industry. Topics and challenges specific to the industry will be examined. Students will learn basic professional career paths, tasks, and duties of sport managers with a focus on practical examples of sport management skills and strategies, as well as relevant theoretical concepts.

HP 363 Science of Strength Training and Kinesiology **3 credits**
A study of the skeletal muscles, attachment sites, and muscle actions as they relate to physical activity, sport, and exercise. In addition, strength training concepts and techniques will be explored.

Prerequisites: BIOL 220

HP 372 Exercise Science for Coaches **3 credits**
The purpose of this course is to acquaint the student with an understanding of basic scientific principles essential to working successfully with athletes as a coach.

HP 388 Assessment in General Phys Educ & DAPE **3 credits**
Tools and techniques for assessing learning and performance of children in physical education. Procedures for assessing motor performance of children with disabilities emphasizing available assessment tools, interpretation of data, preparation of Individualized Educational Programs (IEP), and due process.

Prerequisites: HP 295, HP 313, HP 333

Corequisites: HP 411

HP 392 Group Exercise Instruction 2 credits

The student will gain knowledge and skills that will allow them to take and pass a reputable group exercise instruction certification, develop/instruct a wide variety of group exercise formats and monitor and modify the exercise of participants in a group exercise.

HP 415 Advanced Sports Medicine 2 credits

This course is designed for individuals interested in advanced study in the field of sports medicine. The course will provide advanced study or orthopaedic assessment techniques, application of therapeutic exercise and modalities, and rehabilitation techniques. Spring, Summer

Prerequisites: BIOL 220, HLTH 210, HP 340

HP 417 Principles of Wellness Coaching 3 credits

This course contains content associated with achieving entry-level certifications for wellness coaching. Health behavior change strategies are emphasized within the context of the health coaching theory, coaching relationship skills, well-being assessment, and goal setting.

HP 418 Intercultural Competence for Allied Health Professionals 3 credits

Studying abroad is a transformative experience that has the power to challenge our thinking and our perspective on the world. This experiential course will help you become a global citizen, develop intercultural competence, and enhance your abilities to work in health-related fields with diverse clients and patients. Specifically, we will be participating in intercultural activities before the study abroad and several cultural immersion activities while abroad (e.g., participating in a traditional cultural ceremony).

HP 425 Developmental Adapted Physical Education Methods 3 credits

This course will prepare teacher candidates to recognize, understand, apply, and analyze methodologies within the PK-12 developmental adapted physical education settings. Candidates will learn practical procedures and practices for teaching essential content within PK-12 DAPE settings. Candidates will learn organizational and managerial practices for the teaching environment and will apply this knowledge in various teaching situations.

Prerequisites: HP 313, HP 333

HP 426 Physical Education Teaching Styles 3 credits

This course provides students with an in-depth understanding of Mosston's teaching styles. Students will gain knowledge in the spectrum of teaching styles and their application in the teaching of physical education.

Prerequisites: HP 201, HP 295, HP 330

HP 427 Applied Movement Principles 3 credits

Study of how children learn motor skills in physical education during the developmental stages. Basic principles of the human body as they relate to the physical, physiological, and psychological factors that affect motor skill acquisition, performance, retention, and transfer in the teaching of physical education and DAPE.

Prerequisites: Majors only

HP 428 Collaboration in Developmental Adapted Physical Education 3 credits

Introduction to collaboration and consultation strategies and techniques used with personnel associated with the IEP process in a PK-12 DAPE program. Personnel includes, but may not be limited to, general physical educators, guardians, students, related services, community agencies.

Prerequisites: HP 333, HP 388

HP 429 Developmental Adapted Physical Education Community of Practice 3 credits

Supervised school-based practicum teaching physical education/developmental adapted physical education to students with disabilities.

Prerequisites: HP 388, HP 425

HP 430 Applied Behavior Analysis in Physical Education 3 credits

Introduction to the principles of applied behavior analysis with specific application to physical education/developmental adapted physical education. Methods to manage, motivate, and teach responsible behaviors in a variety of physical activity settings to students with and without disabilities.

HP 431 Biomechanics 3 credits

This course will examine the biomechanical basis of human movement as well as the use of movement analysis technologies. Application to activities of daily living, sport, and exercise will be investigated.

Prerequisites: HP 363

HP 435 Planning Sport Facilities 3 credits

This course provides students with information on the planning, development, and administration of sport facilities (i.e., physical education, athletics, recreation, fitness/wellness centers, etc.). Spring, Summer

HP 437 Sport Media, Sponsorship and Sales 3 credits

An in-depth study of sport management theories, policies, objectives, and strategies applied to sport marketing through the functions and areas of sport sponsorships, sales and media.

HP 439 Nutrition for Physical Activity and Sport 3 credits

Provides in-depth exploration of the dietary needs of physically active individuals across the lifespan. Its laboratory component will focus on performance and interpretation of assessments commonly used to determine dietary and physiological status.

Prerequisites: HP 314

HP 449 K-12 Teaching Methods in Physical Education 3 credits

This course is designed to prepare teacher candidates to recognize, understand, apply, and analyze critical methodologies within the K-12 physical education setting. Students will develop an understanding regarding how to provide practical procedures and practices for teaching essential content within the K-12 physical education setting. Students will further develop an understanding of organizational and managerial practices in the teaching environment. Students will apply this knowledge in various teaching situations.

Prerequisites: HP 201, HP 295, HP 388

Corequisites: HP 450

HP 450 K-12 Teaching Physical Education Practicum 1 credit

This course is designed to prepare teacher candidates for the physical education teaching environment. Students will be required to take part in a K-12 physical education practicum experience. Students will apply various physical education teaching methodologies learned during their K-12 Methods in Physical Education course.

Prerequisites: HP 201, HP 295, HP 388

Corequisites: HP 449

HP 451 Principles of Coaching **3 credits**

Basic understanding of the theoretical and practical applications of the sport science areas of physical education related to coaching. Current issues and topics addressing the principles and problems of the prospective interscholastic coach.

HP 455 Esport Governance **3 credits**

This course introduces students to governing bodies and regulatory structures of esport organizations. Students explore the structure and function of esports governing bodies, such as: BEA, ESL, IESF, NACE, and NEA. Students also explore the concept of a player bill of rights, various rule sets, and conference structures for various esport leagues. The class will cover the various organizational goals and administrative functions of the esport ecosystem's various governing bodies and learn about the history of how these bodies developed. Requires admission to the Esport Management Minor program.

HP 459 Financial Aspects of Sport **3 credits**

This course is designed to provide knowledge and understanding of the principles of economics, budgeting, and finance as it applies to the sport business industry.

Prerequisites: ACCT 200 or consent of instructor

HP 460 Curriculum Design in Physical Education **3 credits**

Considerations and issues of standards-based physical education curricula in the PK-12 schools. Focus on components, development, implementation, management, and assessment of widely used curricula in physical education.

Prerequisites: HP 449, HP 450

HP 462 Sports Administration **3 credits**

The course provides students with fundamental theoretical and practical knowledge in management principles and techniques. Philosophy, leadership, communications, public relations, marketing, ethical and legal issues, finances and facilities are also studied.

HP 463 Seminar in Sport Management **3 credits**

This course is designed to provide students with opportunities to apply the knowledge and skills obtained from sport management courses in order to solve problems that a sport manager is likely to encounter.

HP 464 Analysis of Sport Data **3 credits**

The introduction of basic principles and procedures of measurement skills used by sport managers in applying and analyzing sport-related data such as sport marketing, operational, or financial data in a sport organizational setting. Spring

HP 465 Legal Aspects of Physical Education and Sport **3 credits**

To provide legal and safety aspects in physical activity. Legal liability, civil rights, and contract law are emphasized.

HP 466 Graded Exercise Testing and Exercise Prescription **3 credits**

This course will provide the student with the knowledge, skills, and abilities required to complete pre-participation screening and assess health-related physical fitness and develop scientifically sound exercise prescriptions based on objective assessments.

Prerequisites: HP 414

HP 467 Worksite Wellness Program Development **3 credits**

Reviews the contextual issues and health policies in the workplace. Efficacy of best practices in worksite wellness strategies, employee engagement, program design and implementation, and program assessment are explored.

Prerequisites: HP 414

HP 468 Sport Marketing **3 credits**

The study of marketing theory, research, strategies, and techniques in the areas of market segmentation, sport products, licensing and merchandising, market research, pricing, promotions, sales, public relations, electronic media, sponsorship and consumer behavior as it applies to the marketing sport or marketing products through sport.

HP 469 Sport and Esport Event Management **3 credits**

Techniques/principles of planning, funding and managing sport events. Collegiate championships, non-profit events, benefits, professional events.

HP 470 Psychology of Coaching **3 credits**

To introduce interested students, professionals, and coaching licensure candidates to the psychological literature and latest techniques associated with coaching in an athletic setting.

Prerequisites: PSYC 101 or equivalent

HP 475 International Sport Management **3 credits**

The purposes of this course are to expand students' awareness of global sport management principles and obtain firsthand experience in international sport through studying abroad. The course will address ethics, marketing, event management, finance, and challenges/issues in international sport management.

HP 477 Behavior Change Foundations and Strategies **3 credits**

Behavior Change Foundations and Strategies (3 semester credits) is a course that focuses upon the complexity of health behavior change and the skills necessary for a health promotion professional to assess, plan, and evaluate behavior change interventions for individuals and communities. Health behavior change theories and strategies will be discussed. Topics covered in class will include: behavior modification, goal setting, self-management, coping skills, and social support. Emphasis will also be given to the impact of policy and environmental influences on behavior.

HP 480 Senior Seminar **3 credits**

Principles of organization and administration of athletic training service programs. Includes principles of research and evidence-based practice in athletic training.

Prerequisites: Consent, HP 343

HP 482 Coaching Practicum **1-2 credits**

Supervised experience in a public school varsity/junior varsity sport setting. Prereq: First aid and coaching theory and HP 340

Prerequisites: HP 340, HP372, HP 451

HP 483 Cardiac Rehabilitation **3 credits**

A course designed to provide experience for persons seeking leadership roles in institutions housing programs of rehabilitative cardiovascular exercise and risk factor intervention.

Prerequisites: HP 414 and HP 467 or equivalent

HP 486 Small Group Personal Training **3 credits**

This course provides an experiential learning experience for students to further apply their foundational exercise science knowledge and skills through individualized exercise sessions.

Prerequisites: HP 363, HP 466

HP 487 Applied Exercise Science **4 credits**
This course is designed to provide an applied, comprehensive experience for exercise science students to develop skills and dispositions to succeed in careers in health/fitness and sport performance.

Prerequisites: HP 414

Corequisites: HP 496

HP 488 Applied Sport Business **3 credits**
This course is designed to provide a rigorous, comprehensive hands-on learning experience for students majoring in Sport Management. This more closely supervised field experience requires a rigorous time and energy commitment from students.

HP 489 Applied Esport Management **3 credits**
This course is designed to provide a rigorous and comprehensive hands-on learning experience tailored for students minoring in Esport Management. It integrates theoretical knowledge and practical skills acquired throughout the Esport Management program. This more closely supervised applied experience requires a rigorous time and energy commitment from students.

HP 490 Workshop **1-4 credits**
Content is variable and based on special topic.

HP 493 Internship in Developmental/Adapted Physical Education **1 credit**
Supervised hands-on experience teaching physical education to students with disabilities.

Prerequisites: HP 411 and HP 445

HP 496 Internship **1-10 credits**
Designed as an intense practical experience in a selected area.

Prerequisites: HP 414, HP 466

HP 497 Sport Tourism **3 credits**
Students will learn about Sport Tourism Theory and will apply those theoretical concepts through a hands-on experience with a Sport Tourism event. Topics that will be covered include sport tourism management, marketing, sustainability, research and issues/trends as well as the economic, social, and environmental impact of sport tourism.

HP 499 Individual Study **1-5 credits**
Topics for reading and/or research in human performance to be arranged between student and faculty. This must be done prior to registration.

Humanities

HUM 101W Introduction to Humanities and the Search for Meaning **4 credits**
An introduction to Humanities and its themes of study, including an exploration of the diversity of world cultures and multiple forms of creativity and expression. aspects of interactions among peoples across the world. Students will think critically about and increase their understanding of diverse human perspectives and global relationships.

HUM 150 Western Humanities I: Cave Paintings to Cathedrals **4 credits**
An introduction to the history of humankind through the lens of the humanities--language and literature, art and architecture, music, philosophy, and religion. Through the study of the humanities, we aim not only to know but also to understand what humans across time have thought about and created from earliest times through the 15th century.

HUM 151 Western Humanities II: da Vinci to the Digital Age **4 credits**
An introduction to the history of humankind through the lens of the humanities--language and literature, art and architecture, music, philosophy, and religion. Through the study of the humanities, we aim not only to know but also to understand what humans across time have thought about and created from High Renaissance through the 21st century.

HUM 155 Global Humanities I: Asia & Africa **4 credits**
An introduction to the cultures and traditions of Asia and Africa through focused interdisciplinary humanities topics--language and literature, art and architecture, music, philosophy, and religion. Through the study of the humanities, we aim not only to know but also to understand how culture has influenced humans to develop and express their ideas, ideals, and their inner selves. May be repeated with different topics.

HUM 156 Global Humanities II: The Americas, Australia, & Oceania **4 credits**
An introduction to the cultures and traditions of the Americas, Australia, and Oceania regions through focused interdisciplinary humanities topics--language and literature, art and architecture, music, philosophy, and religion. Through the study of the humanities, we aim not only to know but also to understand how culture has influenced humans to develop and express their ideas, ideals, and their inner selves. May be repeated with different topics. Diverse Cultures: Purple

HUM 250 Perspectives in Humanities **2-4 credits**
Explores the critical analysis of written, visual, and/or musical texts; considers these texts from a variety of cultural and historical contexts; and analyzes issues that engage basic questions of human existence for individuals and societies. May be repeated when topic changes.

HUM 250W Perspectives in Humanities **4 credits**
Explores the critical analysis of written, visual and/or musical texts; considers these texts from a variety of cultural and historical contexts; and analyzes issues that engage basic questions of human existence, for individuals and societies. May be repeated when topic changes.

HUM 280 Humanities Traditions **2-4 credits**
Historical or cultural periods, beliefs, or movements within the larger Western traditions of Europe and the Americas and the expressions of these traditions through the visual, literary, and performing arts and other forms. May be repeated when topic changes.

HUM 280W Humanities Traditions **4 credits**
Historical or cultural periods, beliefs, or movements within the larger Western traditions of Europe and America and the expressions of these traditions through the visual, literary and performing arts and other forms. May be repeated when topic changes.

HUM 281W Human Diversity and Humanities Traditions **4 credits**
Cultural and artistic traditions of groups that have experienced discrimination or exclusion in U.S. society and how these groups express themselves through the visual, literary and performing arts and other forms. May be repeated when topic changes. Diverse Cultures: Purple

HUM 282W Global Perspectives and Humanities Traditions 4 credits
Historical or cultural periods, beliefs, or movements of one of more groups outside Europe and America and the expressions of these traditions through the visual, literary and performing arts and other forms. May be repeated when topic changes. Diverse Cultures: Purple

HUM 350 Reading for Humanities 1-4 credits
Independent reading in the Humanities. Three options: 1) selected readings in Classical Humanities; 2) selected readings in Environmental Humanities; and 3) student-selected readings in Humanities. Requires permission of Humanities Program Director.

HUM 380 Topics in Humanities 4 credits
Topics in Humanities will be a variable-title course that explores special topics in common issues, ideas, and themes that run throughout different cultures and throughout human history. May be repeated with different topics.

HUM 450W Humanities Seminar 4 credits
Intensive study of a topic related to the field of Humanities. Topics vary and engage students in issues of cultural and artistic periods, trends, theories, expression, and/or global or historic connections.

Prerequisites: HUM 282W

HUM 490 Senior Capstone Project 4 credits
An individual project by Humanities Majors that will demonstrate an ability to use interdisciplinary methods to draw together different areas of study in focusing on a specific topic, problem or concern. Requires approval of the Humanities Director or designated advisor.

Prerequisites: Admission to college as Humanities Major

HUM 498 Humanities Internship 1-4 credits
An applied work and learning experience in the field of interdisciplinary Humanities.

Prerequisites: HUM 282W, advanced standing in Humanities and consent of instructor.

HUM 499 Individual Study 1-4 credits
Interdisciplinary study in an area for which the student has basic preparation.

Prerequisites: Approval of faculty.

Integrated Engineering

ENGR 110 Introduction to Project-based Engineering 3 credits
Introduction of the engineering design process, professional skills necessary for the modern engineer, learning strategies needed for academic success, and overview of engineering applications relevant to society. Students will use engineering tools to complete an engineering team project.

ENGR 240 Linear Circuit Analysis and Design 3 credits
This course introduces linear circuit analysis with an emphasis on design of circuits. Topics include: physical principles underlying circuit element models; Kirchhoff's laws; series and parallel resistive circuits; independent and dependent sources; node-voltage and mesh-current methods; Norton and Thevenin theorems; phasors; transient and steady state first- and second-order circuits; power; and use of elements in circuit design.

Prerequisites: MATH 122, PHYS 222

Corequisites: MATH 321

ENGR 241 Linear Circuit Analysis and Design Laboratory 1 credit
This course explores the experimental aspects of Linear Circuit Analysis and Design. Experiments will familiarize students with electrical laboratory equipment. Concepts discussed in ENGR 240 will be verified. Circuit theory will be applied in design experiences. Admitted to an Integrated Engineering program.

Prerequisites: ENGR 240

ENGR 276 Technical Communication for Integrated Engineering 1-3 credits
Engineers use spoken, written and visual forms to communicate technical information related to research, projects, and processes to a variety of audiences. Students will choose to focus on developing skills in at least one of the three forms and contextualize that using project or work-based experiences in engineering. Can be repeated for credit up to 3 credits with different forms of technical communication (spoken, written, visual) addressed. Credits apply only to program communication requirements.

Prerequisites: ENG 101

ENGR 277 Research Writing for Engineers 1 credit
Engineers use writing to organize their understanding of technical ideas, prepare for research activity, and disseminate knowledge generated through research. Students will develop a research proposal, a research paper for submission to a conference or journal, or a background literature review summarizing multiple resources. Can be repeated for credit with different topics and/or different writing types. Credits apply only to program communication requirements.

Prerequisites: ENG 101

ENGR 293 MAX Scholar Seminar 1 credit
This class provides MAX scholars with an opportunity to explore a set of topics related to achieving success in academic, professional and personal realms. Speakers will include faculty, graduate students, visiting researchers and industry members as well as student participants.

Prerequisites: Recipient of a MAX scholarship or instructor consent

ENGR 296 Topics in Engineering 1-4 credits
Varied topics in engineering not covered in other 100 or 200-level courses. May be repeated for each new topic.

ENGR 299 Bridge to Project-based Engineering 3 credits
An introductory project-based learning experience in engineering designed to prepare students for upper-division project-based work. Students will be exposed to teamwork, self-regulated learning, and the design process as they participate in the design and implementation of an engineering project.

Prerequisites: Admission to Integrated Engineering major or consent.

ENGR 300 Introduction to Engineering Design for Non-Majors **4 credits**

Students working towards a minor in the Department of Integrated Engineering will participate in and reflect on the engineering design process, the professional aspects of working on an engineering team, and the intersection of engineering projects and their major. Design activities include such things as scoping, modeling, experimentation, analysis, modern tools, design reviews, multi-disciplinary systems view, creativity, safety, business plans, and global/societal/environmental impacts.

Prerequisites: Students must be admitted to the Department of Integrated Engineering minor or certificate programs.

Corequisites: ENGR 311W

ENGR 301 Design I **3 credits**

Students learn and practice the essential elements of engineering design through industry project implementation: scoping, modeling, experimentation, analysis, modern tools, design reviews, multi-disciplinary systems view, creativity, safety, business plans, global/societal/environmental impacts.

ENGR 302 Design II **3 credits**

Students further learn and practice the elements of engineering design through industry project implementation: scoping, modeling, experimentation, analysis, modern tools, design reviews, multi-disciplinary systems view, creativity, safety, business plans, global/societal/environmental impacts.

Prerequisites: ENGR 301

ENGR 311W Professionalism I **3 credits**

Students learn and develop the elements of professionalism while operating in project teams interacting daily with clients from industry. Topics include leadership, metacognition, teamwork, written and oral communication, ethics and professional and personal responsibility.

ENGR 312W Professionalism II **3 credits**

Students further learn and develop the elements of professionalism while operating in project teams interacting daily with clients from industry. Topics include further examination of leadership, metacognition, teamwork, written and oral communication, ethics, and professional and personal responsibility.

Prerequisites: ENGR 311W

ENGR 321 Engineering Core: Statistics **1 credit**

Introduction to statistics in an engineering context. Design of experiments and data collection, descriptive statistics, inferential statistics including hypothesis testing, and statistical software are introduced and applied. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 322 Engineering Core: Programming/Modeling **1 credit**

Students gain breadth across all objectives and depth in either programming or mathematical modeling. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 331 Mechanical Core: Dynamic Systems **1 credit**

Application of differential equations and Laplace Transform to determine the time evolution of mechanical, electrical, and fluid systems. Representing systems with transfer functions, block diagrams, and implementing modern simulation techniques. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 332 Mechanical Core: Fluid Mechanics **1 credit**

Analysis of static and dynamic fluid systems using energy, continuity, impulse-momentum, Pascal, and Archimedes' principles. Applications in both steady and non-steady state. Fluid friction, pipe flow, flowmeters. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 333 Mechanical Core: Manufacturing Processes **1 credit**

Introduction to the field of manufacturing and its relationship to other aspects of engineering. Study of established and emerging parts fabrication processes, such as 3D printing, welding, injection molding, casting, etc. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 334 Mechanical Core: Material Science **1 credit**

Relationship between microstructures, processing, and properties of engineering materials with a focus on mechanical behavior and evaluation. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 335 Mechanical Core: Mechanics of Materials **1 credit**

Introduction to material responses in various loading scenarios including axial, bending, shear, and torsion. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 336 Mechanical Core: Thermodynamics **1 credit**

Application of first law of thermodynamics, mass balances, and property relationships to open and closed systems and power and refrigeration cycles. Introduction to the second law. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 341 Electrical Core: AC Circuits **1 credit**

Behavior of RL, RC, and RLC circuits including natural, step, and driven responses. Applications of frequency domain to circuit theory. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 342 Electrical Core: Control Theory **1 credit**

Modeling and analysis of linear feedback control systems including block diagrams, stability, and root locus. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 343 Electrical Core: Digital Logic**1 credit**

Introduction to combinational and sequential logic including logic gates, Boolean algebra, logic minimization, flip flops, and applications such as HDL or PLC programming. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 344 Electrical Core: Electronics**1 credit**

Analysis of circuits containing active elements such as amplifiers, diodes, and transistors. Both field effect and bipolar junction devices are covered in the context of digital and analog circuits. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 345 Electrical Core: Instrumentation**1 credit**

Issues related to measurement including transducers, resolutions, signal integrity, noise, analog to digital conversion, and loading. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 346 Electrical Core: Motors, Generators & Transformers**1 credit**

Conversion of energy between the electrical, magnetic, and mechanical domains specifically including transformers; AC and DC motors; and AC and DC generators. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to program.

ENGR 350 Elective Technical Competency**1-2 credits**

In-depth study of an engineering area related to an engineering project or foundation topic in a focus area. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 351 Elective Technical Competency in Electrical Engineering**1-2 credits**

In-depth study of an engineering area related to an engineering project or foundation topic in the focus area of Electrical Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 352 Elective Technical Competency in Mechanical Engineering**1-2 credits**

In-depth study of an engineering area related to an engineering project or foundation topic in the focus area of Mechanical Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 353 Elective Technical Competency in Systems Engineering**1-2 credits**

In-depth study of an engineering area related to an engineering project or foundation topic in the focus area of Systems Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 354 Elective Technical Competency in Programming**1-2 credits**

In-depth study of an engineering area related to an engineering project or foundation topic in the focus area of Systems Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 355 Elective Technical Competency in Modern Engineering Tools**1-2 credits**

In-depth study of an engineering area related to an engineering project or foundation topic in the focus area of Modern Engineering Tools. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 398 CPT: Co-Operative Experience**0 credits**

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: MATH 223. At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

ENGR 401 Capstone Design I**3 credits**

The first in a two-semester sequence of capstone design. Students build on the experience gained in ENGR 301/302 to bring their implementation to that expected of contributing engineers in industry.

Prerequisites: ENGR 302, ENGR 312W. At least 14 credits earned in technical competencies.

ENGR 402 Capstone Design II**3 credits**

This is the second capstone design course and fourth design course overall. Expectations include potential patent applications, entry in business plan competitions, or some similarly high-level achievement.

Prerequisites: ENGR 401, ENGR 411W. At least 22 credits earned in technical competencies.

ENGR 411W Professionalism III**3 credits**

Students further learn and develop the elements of professionalism while operating in project teams interacting daily with clients from industry. Further development/practice of leadership, metacognition, teamwork, written and oral communication, ethics, and professional and personal responsibility in project context.

Prerequisites: ENGR 312W

ENGR 412W Professionalism IV**3 credits**

Students further learn/develop professionalism while interacting regularly with clients from industry. Topics include further development and practice of leadership, metacognition, teamwork, written and oral communication, ethics, and professional and personal responsibility in project context, with reflection on educational growth.

Prerequisites: ENGR 401, ENGR 411W

ENGR 421 Advanced Engineering Core: Engineering**Economics****1 credit**

Engineering economics topics including time value of money, simple and compound interest, annualized cash flows, inflation, and capital budgeting decision tools such as net present worth, payback period, return on investment, benefit/cost ratio, break-even analysis, and basic income statement reports. Topics are applied in a deep learning activity that relates to the team design project or a personal finance decision.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 422 Advanced Engineering Core: Entrepreneurship**1 credit**

Frameworks linking the entrepreneurial mindset to innovation. Includes connections to value propositions, profitability, customer requirements, and design decisions. Appropriate both for those who want to start a business and those who want to innovate within a going concern. Students will do in-depth learning of some aspect of the content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 431 Mechanical Advanced Competency: Heat Transfer**1 credit**

Overview of heat transfer mechanisms including conduction, convection, and radiation. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 432 Mechanical Advanced Competency: Structural Analysis**1 credit**

Introduction to engineering standards in structural design; analysis of structures such as trusses, beams and frames with analytical, computational, and experimental methods for problem solving. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 441 Advanced Electrical Core: Electricity & Magnetism**1 credit**

Maxwell's equations applied to electrostatics and magnetostatics. Electromagnetic wave propagation, transmission lines, and antennas. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 442 Electrical Advanced Competency: Signals & Systems**1 credit**

Descriptions of signals in the time and frequency domain. Analysis of linear systems in the time and frequency domain. Includes applications of Fourier transforms. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs.

ENGR 450 Advanced Technical Competency**1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in a focus area. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 451 Advanced Technical Competency in Electrical**Engr****1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Electrical Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 452 Advanced Technical Competency in Mechanical**Engr****1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Mechanical Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 453 Advanced Technical Competency in Biomedical**Engr****1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Biomedical Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 454 Advanced Technical Competency in Chemical**Engr****1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Chemical Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 455 Advanced Technical Competency in Computer**Engr****1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Computer Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work. Admission to the major is required.

Corequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 456 Advanced Technical Competency in Engineering Management**1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Engineering Management. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 457 Advanced Technical Competency in Environmental Engr 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Environmental Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 458 Advanced Technical Competency in Industrial Engr 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Industrial Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 459 Advanced Technical Competency in Manufacturing Engr 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Manufacturing Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 460 Advanced Technical Competency in Materials Science and Engineering 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Materials Science Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 461 Advanced Technical Competency in Process Engr 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Process Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 462 Advanced Technical Competency in Systems Engr 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Systems Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 463 Advanced Technical Competency in Transportation Engr 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Transportation Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 464 Advanced Technical Competency in Aerospace Engineering 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Aerospace Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work. Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 465 Advanced Technical Competency in Aerosol Engineering 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Aerosol Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work. Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 475 Advanced Technical Competency in Combustion 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Combustion. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 476 Advanced Technical Competency in Entrepreneurship 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Environmental Engineering. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Entrepreneurship. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

ENGR 477 Advanced Technical Competency in Leadership 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Leadership. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 478 Advanced Technical Competency in Renewable Energy 1-8 credits

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Renewable Energy. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 479 Advanced Technical Competency in Structural Analysis **1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Structural Analysis. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 480 Advanced Technical Competency in Microelectronics **1-8 credits**

In-depth, advanced study of an engineering area related to an engineering project or foundation topic in the focus area of Microelectronics. Students will do in-depth learning of some aspect of content area. Coursework may be tied to project work.

Prerequisites: Admission to major, minor or certificate programs and faculty approval for study that extends a core topic area.

ENGR 492 Seminar **1 credit**

Students learn about engineering practice through seminars with practicing engineers from industry and are assisted in their development as learners through workshops. This course is repeated by Integrated Engineering students every semester.

ENGR 493 MAX Scholar Seminar **1 credit**

This class is for MAX scholars and covers topics related to achieving success in academic, professional and personal realms. Speakers will include faculty, graduate students, visiting researchers and industry members. Students will mentor lower division scholars and do presentations.

Prerequisites: Recipient of a MAX scholarship or instructor consent.

ENGR 494 Global Experience in Engineering and Technology **1 credit**

This class provides students pursuing a minor in Global Solutions in Engineering and Technology with an opportunity to explore a set of topics related to achieving success in advance of and following an international experience (internship, study abroad, etc.). Speakers will include faculty, graduate students, visiting researchers and industry members as well as student participants. Returning students will be required to participate in mentoring of students preparing for their international experience and provide written and/or oral presentations of various topics during the semester. This course is required both before and after participation in the international experience (min. 2 cr.)

ENGR 496 Selected Topics in Engineering **1-4 credits**

Special topics not covered in other courses. May be repeated for credit on each new topic. Pre: Consent

Prerequisites: Consent

ENGR 498 Senior Thesis **3 credits**

Advanced study and research required. Topic of the senior thesis determined jointly by the student and the faculty advisor. Deliverables include written thesis and formal oral presentation.

Prerequisites: Senior standing in program and at least 14 credits earned in technical competencies

Integrated Science and Technology

ISAT 301 Interdisciplinary Portfolio I **1 credit**

Collection, analysis, and presentation of work connecting humanistic and technical knowledge with degree and career objectives. As students move through the ISAT 301, 302, 401, 402 portfolio sequence, each 1-credit course will build and expand upon work from the previously-completed portfolio courses. Requires admission to ISAT program.

Prerequisites: Admission to ISAT program.

ISAT 302 Interdisciplinary Portfolio II **1 credit**

Collection, analysis, and presentation of work connecting humanistic and technical knowledge with degree and career objectives. As students move through the ISAT 301, 302, 401, 402 portfolio sequence, each 1-credit course will build and expand upon work from the previously-completed portfolio courses. Requires admission to ISAT program.

Prerequisites: Admission to ISAT program.

ISAT 401 Interdisciplinary Portfolio III **1 credit**

Collection, analysis, and presentation of work connecting humanistic and technical knowledge with degree and career objectives. As students move through the ISAT 301, 302, 401, 402 portfolio sequence, each 1-credit course will build and expand upon work from the previously-completed portfolio courses. Requires admission to ISAT program.

Prerequisites: Admission to ISAT program.

ISAT 402 Interdisciplinary Portfolio IV **1 credit**

Collection, analysis, and presentation of work connecting humanistic and technical knowledge with degree and career objectives. As students move through the ISAT 301, 302, 401, 402 portfolio sequence, each 1-credit course will build and expand upon work from the previously-completed portfolio courses. Requires admission to ISAT program.

Prerequisites: Admission to ISAT program.

ISAT 480 Capstone Proposal **2-4 credits**

Capstone project ideation, research, and proposal development. Projects are undertaken in mixed groups across disciplines: communications, science, and technology, who work together to propose and complete a project. Student groups determine project topic based on interest and expertise. The total combined credits for ISAT 480 and ISAT 490 should be six credits. Requires admission to ISAT program.

Prerequisites: ISAT 302, Admission to ISAT program.

ISAT 490 Capstone Experience **2-4 credits**

Capstone project execution and completion. Projects are undertaken in mixed groups across disciplines, communications, science, and technology, who work together to complete a project. Student groups determine project topic based on interest and expertise. The total combined credits for ISAT 480 and ISAT 490 should be six credits. Requires admission to ISAT program.

Prerequisites: ISAT 302, Admission to ISAT program.

Student and faculty agree upon a specific unit of study. Student presents unit to faculty member for evaluation.

Intensive English Program

IEP 010 Beginning Reading and Vocabulary 0 credits

In this course, multilingual students in the Intensive English Program develop their reading comprehension and vocabulary at the beginning level by reading a selective range of shorter academic texts from a variety of genres and by applying a variety of reading and vocabulary-building strategies.

IEP 011 Beginning Writing 0 credits

In this course, multilingual students in the Intensive English Program develop their writing skills at the beginning level by writing sentences and short paragraphs in a range of genres and by applying a variety of writing strategies.

IEP 012 Beginning Listening and Speaking 0 credits

In this course, multilingual students in the Intensive English Program develop their listening and speaking skills at the beginning level by listening to a selective range of short academic texts and other types of audio-visual texts, by participating in short academic and social conversations, and by performing brief oral presentations.

IEP 013 Beginning Grammar 0 credits

In this course, multilingual students in the Intensive English Program develop their grammar skills at the beginning level by understanding how written and spoken grammar at the sentence-level is used in context and how to apply them in written and spoken contexts.

IEP 014 Beginning Special Topics 0 credits

In this course, multilingual students in the Intensive English Program develop in all four skills of listening, speaking, reading, and writing in an integrated manner through a focus on selected interdisciplinary themes and topics. Designed for beginning learners, the course will help students to develop their overall language proficiency.

IEP 020 Low-Intermediate Reading and Vocabulary 0 credits

In this course, multilingual students in the Intensive English Program develop their reading comprehension and vocabulary at the low-intermediate level by reading a selective range of academic texts from a variety of genres and by applying a variety of reading and vocabulary-building strategies.

IEP 021 Low-Intermediate Writing 0 credits

In this course, multilingual students in the Intensive English Program develop their writing skills at the low-intermediate level by writing paragraphs in a range of genres and by applying a variety of writing strategies.

IEP 022 Low-Intermediate Listening and Speaking 0 credits

In this course, multilingual students in the Intensive English Program develop their listening and speaking skills at the low-intermediate level by listening to a selective range of academic lectures and other types of audio-visual texts, by participating in academic and social conversations, and by performing short oral presentations.

IEP 023 Low-Intermediate Grammar 0 credits

In this course, multilingual students in the Intensive English Program develop their grammar skills at the low-intermediate level by understanding how written and spoken grammar is used in context and how to apply them in written and spoken contexts.

IEP 024 Low-Intermediate Special Topics 0 credits

In this course, multilingual students in the Intensive English Program develop in all four skills of listening, speaking, reading, and writing in an integrated manner through a focus on selected interdisciplinary themes and topics. Designed for low-intermediate level learners, the course will help students to develop their overall language proficiency.

IEP 030 High-Intermediate Reading and Vocabulary 0 credits

In this course, multilingual students in the Intensive English Program develop their reading comprehension and vocabulary at the high-intermediate level by reading an extensive range of academic texts from a variety of genres and by applying a variety of reading and vocabulary-building strategies.

IEP 031 High-Intermediate Writing 0 credits

In this course, multilingual students in the Intensive English Program develop their writing skills at the high-intermediate level by writing paragraphs and short essays in a range of genres and by applying a variety of writing strategies. Grading Method

IEP 032 High-Intermediate Listening and Speaking 0 credits

In this course, multilingual students in the Intensive English Program develop their listening and speaking skills at the high-intermediate level by listening to an extensive range of academic lectures and other types of audio-visual texts, by participating in academic and social conversations, and by performing oral presentations.

IEP 033 High-Intermediate Grammar 0 credits

In this course, multilingual students in the Intensive English Program develop their grammar skills at the high-intermediate level by understanding how written and spoken grammar is used in context and how to apply them in written and spoken contexts. Grading Method

IEP 034 High-Intermediate Special Topics 0 credits

In this course, multilingual students in the Intensive English Program develop in all four skills of listening, speaking, reading, and writing in an integrated manner through a focus on selected interdisciplinary themes and topics. Designed for high-intermediate level learners, the course will help students to develop their overall language proficiency.

IEP 040 Advanced Reading and Vocabulary 0 credits

In this course, multilingual students in the Intensive English Program develop their reading comprehension and vocabulary skills at an advanced level. These skills include reading academic texts from a variety of genres and using a variety of reading and vocabulary-building strategies. The course will help prepare students for regular entrance to the university.

IEP 041 Advanced Writing 0 credits

In this course, multilingual students in the Intensive English Program develop their writing skills at an advanced level. These skills include writing 4-5 paragraph essays, including research essays; writing personal responses to authentic literary texts; and building grammatical competence. The course will help prepare students for regular entrance to the university.

IEP 042 Advanced Listening and Speaking 0 credits

In this course, multilingual students in the Intensive English Program develop their listening and speaking skills at an advanced level. These skills include listening to academic lectures and other forms of multimedia and audio-visual texts, taking notes, participating in small group discussions, interviewing, and practice giving oral presentations. The course will help prepare students for regular entrance to the university.

IEP 043 Advanced Grammar **0 credits**
In this course, multilingual students in the Intensive English Program develop their grammar skills at the advanced level by understanding how written and spoken grammar is used in context and how to apply them.

IEP 044 Advanced Special Topics **0 credits**
In this course, multilingual students in the Intensive English Program develop in all four skills of listening, speaking, reading, and writing in an integrated manner through a focus on selected interdisciplinary themes and topics. Designed for advanced level learners, the course will help prepare students for regular entrance to the university.

Interdisciplinary Studies

IDST 496 Capstone Experience **1-4 credits**
The BS in Open Studies and BS in Interdisciplinary Studies culminate in a capstone experience course which students take during their final semester of studies. Students reflect upon their learning to understand how their coursework has prepared them to transition from the academic world into the professional world. This is a variable-credit course that can be taken for 1-4 credits depending on each student's needs and under consultation with their advisor. The workload increases with each credit. The requirements for this course are dependent on academic focus and goals for the future.

IDST 497 Internship **1-4 credits**
Extend coursework into the professional world. Internship must be arranged in consultation with advisor.

IDST 499 Individual Study **1-4 credits**
Individualized learning to be arranged with advisor.

International Business

IBUS 380 Principles of International Business **3 credits**
International dimensions of business: global business environment (economic, cultural, legal, political) and international business functions (management, marketing, finance, exporting, importing).

IBUS 398 CPT: Co-Operative Experience **0 credits**
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: Permission of the Chairperson of the department; co-op contract; other prerequisites may also apply.

IBUS 419 (3.00) International Business Seminar **3 credits**
Topics on current developments in international business, technology, and legislation.
Prerequisites: IBUS 380

IBUS 428 International Marketing **3 credits**
Managerial approach to marketing decision making in multicultural market situations.
Prerequisites: MRKT 210

IBUS 448 International Business Management **3 credits**
This course examines cross-cultural differences in business practices. Among the topics covered are the differences in management styles, multiculturalism, international negotiations, as well as international human resource issues, social responsibility and ethics in a global context, international labor relations, cultural synergy and multicultural teams.

IBUS 469 International Business Finance **3 credits**
International finance functions in a corporation include currency issues, investment, financial markets interacting, raising debt and equity, and export financing.
Prerequisites: IBUS 380

IBUS 485 Export Administration **3 credits**
Provides knowledge and documentary skills in managing and implementing the export operations of firms engaged in international trade.
Prerequisites: IBUS 380

IBUS 490 International Business Policy and Strategy **3 credits**
A capstone course for students majoring in international business designed to analyze and integrate the various international business management decisions.
Prerequisites: IBUS 428, IBUS 448, IBUS 469 (select 2 out of the 3 courses)

IBUS 492 Study Tour **1-3 credits**
Study tours are led by Minnesota State University, Mankato faculty and provide students with opportunities to visit companies and attend lectures by renowned experts from key sectors of economy, government, and business.

IBUS 497 Internship **1-9 credits**
Supervised experience in business, industry, state or federal institutions.
Prerequisites: Consent

IBUS 498 (1-3) Internship **1-3 credits**
Supervised experience in business, industry, state or federal institutions. Taken for grade only.
Prerequisites: Consent

IBUS 499 Individual Study **1-3 credits**
Individual study of special topics.
Prerequisites: Consent

International Programs

IPO 101 International Programs **1-18 credits**
For students participating in semester-long international study programs. Location can vary by student.

Management

MGMT 230 Principles of Management 3 credits

This course examines basic management concepts and principles, their historical development, and their application to modern organizations. Topics covered include planning, organizing, decision making, leadership, control, and organizational change. In addition, the course includes an introduction to business ethics and social responsibility, human resource management, organizational design and organizational behavior.

MGMT 300 Introduction to MIS 3 credits

This course is designed to introduce students to the Management Information Systems and its application in organizations. The course will present to the students the information systems role to support the various managerial activities, and to help the students identify and evaluate various options in Management Information Systems.

Prerequisites: ISYS 101 or CIS 101

MGMT 332 Creativity and Innovation 3 credits

This course is designed to develop a student's personal creativity and help a student identify the process of organizational innovation. The course is comprised of a combination of short lecture, in-class discussion of readings and videos, writing assignments, an elevator pitch and group activities.

MGMT 340 Human Resource Management 3 credits

This course examines the effective management of the human resources of organizations. Topics include analyzing jobs and writing job descriptions; recruiting and hiring of applicants; complying with employment law; managing promotions, quits, and layoffs; employee training and development; evaluating job performance; determining compensation; and managing human resources in a unionized environment.

MGMT 343 Entrepreneurship: New Venture Initiation 3 credits

This course focuses primarily on pre-startup venture activities starting with the idea generation phase. Students will learn to use customer feedback to develop innovative solutions leading to new business model concepts. This course will utilize the latest venture development tools and techniques that assist entrepreneurs in creating value for a diverse group of customers. Throughout the course, students will have the opportunity to engage with business professionals and entrepreneurs. All students are welcome and encouraged to enroll.

MGMT 346 Operations Management for the Supply Chain 3 credits

This course engages students in the study of the operations management function in manufacturing and service organizations. Students learn how to apply the basic analytical models to operation decisions involving topics such as scheduling, production technology, inventory management, quality assurance, just-in-time production, and others.

Prerequisites: ECON 207

MGMT 360 AgriBusiness in the Modern Economy 3 credits

This course examines basic business concepts and principles and their application to modern and future agriculture industries. Agribusiness topics covered include commodities, supply chain, finance, sales, accounting, law, engineering, food safety, healthcare, data analysis, and technology. Professionals in the agriculture industry will be brought into class to explain how business knowledge and skills are essential to various sectors; including but not limited to: livestock, poultry, corn/soybeans, bio-fuels, engineering, and natural resources. Students will have an opportunity to broaden their thinking, understanding, and professional potential as related to the agriculture industry while interacting with industry professionals.

MGMT 380 Human Behavior in Organizations 3 credits

Concepts, theories, and empirical research on organizational behavior are studied. Models and tools for diagnosing situations, individual behavior, group behavior, intergroup conflicts, supervisory problems and organizational change are analyzed.

MGMT 391 Introduction to Business Professionalism 1 credits

This course addresses business professionalism issues such as: work ethic, time management, civility, diplomacy, and planning career changes.

MGMT 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: Permission of the Chairperson of the department; co-op contract; other prerequisites may also apply.

MGMT 404 Introduction to Business Applications 3 credits

The course focuses on business problem-solving and technology connections to business practices. Students will be equipped with the tools to design, build, and deploy applications that could serve as building blocks that logically synthesize business functional areas. This newfound ability to apply business logic will equip students with the necessary skills to design and construct business applications that fulfill the needs of both businesses and their clientele. Furthermore, students will acquire a deeper understanding of management, finance, marketing, and accounting constructs, which will prove valuable in a broad range of careers. This is a course that builds real-world applicable business critical thinking skills while teaching the students the skill of business application creation.

Prerequisites: MGMT 300

MGMT 441 Staffing 3 credits

Students learn how to hire the best talent available using sound professional methods. Students design and present legally defensible recruiting and screening techniques for jobs they have analyzed.

Prerequisites: MGMT 340

MGMT 442 Compensation Management 3 credits

The focus of this course is operating an effective, efficient, legal and responsible system for compensating one's employees. Includes the workings of labor markets, analyzing jobs, finding the market value for jobs, designing a pay structure, appraising performance, setting individual pay, determining benefits, occupations requiring special pay programs.

Prerequisites: MGMT 340

MGMT 443 Entrepreneurship: New Venture Growth **3 credits**

This course focuses on startup and post-startup venture activities. Students who have achieved proof of concept with a venture idea will find this course helpful. Students will learn to evolve a business model concept into a sustainable, scalable venture in a variety of business sectors. Topics discussed include business operations, analysis, entrepreneurial finance, growth, and exit strategies. Students will also learn to present their venture ideas to interested stakeholders. The course will allow students to have the opportunity to engage with business professionals and entrepreneurs.

MGMT 445 Training & Development **3 credits**

Students design and deliver training by assessing client needs, defining learning outcomes, choosing effective methods, training, and evaluating results.

Prerequisites: MGMT 340

MGMT 447 Management: Special Topics **3 credits**

Special topics as requested by students.

Prerequisites: MGMT 230

MGMT 449 Quality Management **3 credits**

This course covers essential topics in modern quality management within manufacturing and service organizations from a managerial perspective, including quality planning, culture, customer focus, leadership, vendor relations, the use of statistical quality control tools and software as well as behavioral issues in the improvement of process and product/service quality.

Prerequisites: ECON 207 or equivalent

MGMT 453 Entrepreneurship Seminar **1 credits**

This course focuses on connecting students to real-world entrepreneurs so that students can analyze current entrepreneurial issues.

MGMT 459 Management Information Systems **3 credits**

This course is designed to prepare students to design and develop personal computer-based information systems for management control and decision-making using end-user software including spreadsheets and data base management systems. Students will design and develop several information systems as group projects.

Prerequisites: MGMT 230, MGMT 300

MGMT 472 Project Management **3 credits**

Students will develop skills needed to initiate, plan, execute, control and close projects. The course will cover theories, techniques, group activities, and use of computer tools like Microsoft Project for managing projects.

MGMT 473 Enterprise Resource Planning (ERP) **3 credits**

This course covers ERP software in general and how it helps integrate information used by an organization's many different functions and departments into a unified computing system. How to use an ERP system to improve the business functions of an organization by streamlining its operations will also be covered. Students will learn how to document business processes using different tools including EPC charts. In addition, the course also covers managerial issues associated with an ERP project and how to manage those issues.

Prerequisites: MGMT 300

MGMT 481 Business Policy & Strategy **3 credits**

MGMT 481 is an integrative course for COB majors. Its emphasis is on understanding the role of a general manager, which should include an operations and international component.

Prerequisites: FINA 362, MRKT 210, MGMT 230, MGMT 346

MGMT 482 Business, Society, & Ethics **3 credits**

Students learn how to apply moral principles to analyze ethical dilemmas in business. Students also learn how to argue for or against government regulation of business. Topics covered include bribery, anti-competitive business practices, pollution, product safety, marketing ethics, employee rights, sexual harassment, discrimination and affirmative action, conflicts of interest, and insider trading.

MGMT 484 Leadership **3 credits**

The course provides a foundation for leadership development by offering theoretical background, practical information, and an opportunity for self-assessment that permits students to begin or continue the development of their leadership talent. The underlying theme upon which the course is based is that the ability to lead begins with reflection and self-awareness.

MGMT 486 Strategic Human Resource Management **3 credits**

This capstone course examines how the strategic management of the human resources of an organization can enhance organizational success. The course investigates how to achieve strategic congruence between an organization's strategy and HR management. Topics covered include the interrelationships among the HR disciplines, ethics, sustainability, social responsibility, the role of the HR professional, managing workforce changes, achieving competitive advantage through HR, HR performance metrics, and organizational effectiveness.

Prerequisites: MGMT 340

MGMT 490 Business Professionals **3 credits**

Professionalism is a key factor for career success. Skills such as critical-thinking, problem-solving, and decision-making are all essential to projecting a professional image. Key competencies contribute to desirable workplace behavior. Active-listening, communicating clearly, working well in teams, taking initiative, are examples to projecting a professional image.

MGMT 492 BBA Capstone **3 credits**

The student will demonstrate and apply knowledge for this capstone course (MGMT 492) and overall BBA program into the real-world project experience. Business skills and professional development will be challenged for the student to integrate relevant knowledge through the project-based learning experience. The final written and oral presentation of the project results will demonstrate the problem-solving and critical thinking context beyond the classroom.

MGMT 496 Internship **4 credits**

Supervised experience in agribusiness or food related organizations, industry, state, or federal institutions.

MGMT 497 Internship **3 credits**

Supervised experience in business, industry, state or federal institutions. P/N only.

MGMT 498 Internship **3 credits**

Supervised experience in business, industry, state or federal institutions. Grade only.

MGMT 499 Individual Study **1-4 credits**

Manufacturing Engineering

MFE 104 Introduction to Manufacturing Engineering 1 credit

This course is designed to provide students new to the major an opportunity to explore issues relevant to the university, department, and career field. The goal is to provide an open forum for discussion about transitioning to college life, and to promote greater self-awareness, growth, and understanding as a scholar, individual, and global citizen. Over the course of the semester, the student will investigate college and department experiences holistically, which will allow them the ability to make informed decisions paving the way for a richer, fuller college career.

MFE 142 Introduction to Computer Aided Design 3 credits

The course covers a process of developing and analyzing solid parametric models for mechanical applications. Course includes solving technical design problems based on real-world applications as well as creating technical documentation: working and assembly drawings.

MFE 275 Manufacturing Processes I 4 credits

Fundamentals of machine technology. Basics of welding and machining are discussed. Students learn to perform machining on a lathe, mill, and drill press along with MIG welding. Extra lab time is required.

Prerequisites: MFE 142. Select One Course: CHEM 191, CHEM 201

MFE 323 Statics 3 credits

This course covers principles of statics, resultants of coplanar force systems, equilibrium of coplanar force systems, analysis of structures, friction, centroids and centers of gravity, and area moments of inertia. Each topic is covered with specific emphasis on systems common to automotive and manufacturing environments.

Prerequisites: MATH 121, PHYS 221

MFE 324 Strength of Materials and Dynamics 4 credits

This course covers stress and strain, torsion, bending of beams, shearing stresses in beams, compound stresses, principal stresses, deflections of beams, columns, connections, and pressure vessels. Topics also include kinematics and kinetics of rigid bodies, work, energy, power and vibrations. Each topic is covered with specific emphasis on systems common to automotive and manufacturing environments.

Prerequisites: MFE 323

MFE 341 Advanced Computer Aided Design 3 credits

The course emphasizes the use of advanced parametric modeling in design, analysis, and manufacturing. Topics include component design, assembly, mechanics, animation, and rapid prototyping using computer technology.

Prerequisites: MFE 142

MFE 347 Manufacturing Automation 4 credits

This course covers CNC programming, computer-aided manufacturing (CAM), flexible automation, machining centers, robotics, programmable logic controllers, and tooling systems. Extra lab time is required.

Prerequisites: EET 113, MFE 142, MFE 275

MFE 375 Manufacturing Processes II 4 credits

Advanced manufacturing processes including casting, forging, sheet metal forming, and powder metals are discussed. Topics also include materials treatment, preparation, design for manufacture, and composites manufacturing (vacuum bagging, resin infusion, forged carbon fiber, mold manufacturing, and high-performance automotive composites). Extra lab time is required.

Prerequisites: MFE 275

MFE 386 Metrology 3 credits

Quality and its continuous improvement which is supported by metrology, statistical process control, and geometric dimensioning and tolerancing. This course presents these topics and their integration into operations.

Prerequisites: MFE 142, STAT 354

MFE 407 Manufacturing Resource Planning & Control 3 credits

Strategic plant resource management for global manufacturing. Approaches examine and practice continuous improvements to the value stream related to design integration, production scheduling, staffing, facilities planning, and material flow.

MFE 423 Industrial Ergonomics 3 credits

This course focuses on the introduction to human factors and ergonomics in manufacturing and service industries. Topics include human capabilities, occupational anatomy, occupational biomechanics, occupational physiology, workstation design using anthropometric design principles; manual work design techniques, methods, and tools; work environment noise and its impact on work design; work environment climate and its impact on work design, occupational risk, safety & hazard assessment, time study & work measurement, work sampling, sample size, standard and normal time, predetermined time systems, methods Time Measurement MTM 1 & 2, Maynard Operation Sequence Technique MOST.

Prerequisites: STAT 354

MFE 424 Industrial Safety 2 credits

The course covers techniques of developing safe working practices in an industrial environment. Application of human factors (ergonomics) and engineering practice in accident prevention and the reduction of health hazards in the occupational environment are presented. Special attention is devoted to the detection and correction of hazards. Design of safety systems, procedures and methods of machine and process guarding.

MFE 425 Project Management and Engineering Economy 3 credits

Engineering economy topics include cost concepts and design economics including cost-estimation techniques, time value of money, depreciation, and income taxes, and before and after-tax cash flow analysis. Project management topics include project network schedules, program evaluation and review technique (PERT), and project progress and performance measurements using state of the art technologies.

Prerequisites: STAT 354

MFE 426 Logistics and Transportation 3 credits

Fundamentals of logistics and supply chain management, control of materials, WIP, finished goods, costs of logistics. Theory and step-by-step procedures are used to analyze logistic systems, material handling, packaging, and transportation, including global logistics.

Prerequisites: STAT 354

MFE 427 Quality Management Systems**3 credits**

Students will explore Lean Enterprise and Six Sigma principles, conduct in-depth examinations of statistical process control, and become skilled in applying essential quality techniques. Proficiency in fundamental statistics, probability, the utilization of control charts, and reliability engineering will also be fostered. Additionally, students will gain knowledge about quality management systems and tools, planning strategies, experimental design, and Taguchi's Quality Engineering. The course will also offer opportunities to apply these acquired skills to real-world scenarios, preparing participants for success in quality management positions across a range of industries.

Prerequisites: STAT 354

MFE 428 Lean Manufacturing**3 credits**

In this course, students will explore the core principles of Lean Manufacturing and discover their versatile applications in both the service and manufacturing sectors. Students will be able to gain insight into the five key principles that underpin Lean methodology and learn how to implement them effectively. This course equips students with the knowledge and skills needed to optimize processes, reduce waste, enhance efficiency, and drive continuous improvement across various industries, making learners a valuable asset in today's dynamic business landscape.

MFE 448 Computer Integrated Manufacturing**3 credits**

This course covers manufacturing systems integration techniques and Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM). The implementation of the technologies learned in the MFE program will be applied in various design exercises to demonstrate proficiency in Computer Integrated Manufacturing (CIM) and manufacturing automation.

Prerequisites: MFE 341

MFE 455 Project Management and Engineering Economy II**3 credits**

This course covers replacement analysis, depreciation, income taxes, break-even & risk analysis, and capital budgeting during the life cycle of an engineering project. Advanced concepts in project management such as resource planning and project closure are also taught.

Prerequisites: MFE 425

MFE 488W Senior Design I**2 credits**

An examination of manufacturing design and research. Students refine their design proposal and begin their senior design projects. This course also prepares the student for MFE 489W, Senior Design Project II, where the design project, and final report are completed.

Prerequisites: MFE 275, MFE 425, and 10 MFE 300/400 level credits.

MFE 489W Senior Design II**2 credits**

Completion of the capstone design project; a continuation of MFE 488W.

Prerequisites: MFE 488W

Manufacturing Engineering Technology

MET 104 Introduction to Manufacturing Engineering Technology**1 credits**

An overview of careers, technology and requirements for individuals interested in Manufacturing Engineering Technology. Hands-on experience is gained in a variety of new technologies. Careers in engineering and technology are examined along with professional organizations and ethics. The course is intended as a first step toward a career in manufacturing.

MET 142 Introduction to Parametric Modeling**3 credits**

The course covers a process of developing and analyzing solid parametric models for mechanical applications. Course includes solving technical design problems based on real-world applications as well as creating technical documentation: working and assembly drawings.

MET 275 Manufacturing Processes I**4 credits**

Fundamentals of machine technology and metallurgy. Students learn to perform machining on a lathe, mill, and drill press, and also assemble the products. Basics of heat treatment, welding and machining are discussed. Extra lab time is required.

Prerequisites: CHEM 104 and MET 142

MET 323 Statics**3 credits**

This course covers principles of statics, force equilibrium, analysis of structures, friction, centroid, centers of gravity, and moment of inertia.

Prerequisites: PHYS 211 and MATH 121

MET 324 Strength of Materials and Dynamics**4 credits**

This course covers stress and strain, torsion, bending of beams, shearing stresses in beams, compound stresses, principal stresses, deflections of beams, columns, connections, and pressure vessels. Topics also include kinematics and kinetics of rigid bodies, work, energy, and power.

Prerequisites: MET 323

MET 341 Advanced Parametric Modeling**3 credits**

The course emphasizes the use of parametric modeling in design, analysis and manufacturing. Topics include component design, assembly, mechanism, animation, EFX and rapid prototyping using computer technology.

Prerequisites: MET 142

MET 347 (4.00) Manufacturing Automation**4 credits**

CNC programming, computer-aided manufacturing (CAM), flexible automations, machining centers, robotics, programmable logic controllers, tooling systems. Extra lab time is required.

Prerequisites: EET 113, MET 275, MET 341

MET 375 Manufacturing Processes II**4 credits**

Advanced manufacturing processes including casting, forging, sheet metal forming, and powder metals are discussed. Topics also include materials treatment, preparation, and design for manufacture. Extra lab time is required.

Prerequisites: MET 275

MET 386 Metrology for Engineering Technologist **3 credits**
Quality and its continuous improvement are supported by metrology, statistical process control, and geometric dimensioning and tolerancing. This course presents these topics and their integration into operations.

Prerequisites: MATH 121, MET 341, STAT 154. **Admission to AET/MET major.**

MET 398 CPT: Co-Operative Experience **0 credits**
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: MET 104. **At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.**

MET 407 Manufacturing Resource Planning and Control **3 credits**
Strategic plant resource management for global manufacturing. Approaches examine and practice continuous improvements to the value stream related to design integration, production scheduling, staffing, facilities planning, and material flow.

MET 423 Ergonomics & Work Measurement **3 credits**
Investigates work design in automated and manual operations. Measurement, and development of design-based solutions for reduction of environmental stresses to the human body through worker-machine systems analysis are applied. Regulatory, legal, and ethical issues are reviewed in the context of global manufacturing applications.

Prerequisites: STAT 154

MET 424 Industrial Safety **2 credits**
Techniques of developing safety practices in an industrial environment. Topics include OSHA, current legislation, cost analysis, personal protection, employee selection, psychological aspects, product safety, hazard materials and catastrophe control.

MET 425 Project and Value Management **3 credits**
Planning, management, and economic justification of projects are supported by computer tools for scheduling, staffing, and economic analysis.

Prerequisites: STAT 154

MET 426 Logistics and Transportation **3 credits**
Fundamentals of logistics and supply chain management: control of materials, WIP, finished goods, costs of logistics. Theory and step-by-step procedures are used to analyze logistic systems, material handling, packaging, and transportation, including global logistics.

Prerequisites: STAT 154

MET 427 Quality Management Systems **3 credits**
This course is focused on quality assurance systems, management philosophies, methodology, function and impact of quality systems in manufacturing operations. Development and application of statistical process control tools.

Prerequisites: STAT 154

MET 428 Lean Manufacturing **3 credits**
Basics of Lean Manufacturing in industry, with emphasis on application of concepts. Students will learn the principles of Lean Manufacturing and how they can benefit a business.

MET 448 Computer Integrated Manufacturing **3 credits**
This course covers the following topics: manufacturing systems integration techniques, Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM), Computer-Aided Process Planning (CAPP), Direct Numerical Control (DNC), Flexible Machining Systems (FMS), Automated Storage and Retrieval Systems (ASRS), Automated Guided Vehicles (AGV) and Robotics.

Prerequisites: MET 347, PHYS 212

MET 455 Project and Value Management II **3 credits**
This course covers replacement analysis, depreciation, income taxes, break even & risk analysis and capital budgeting during the life cycle of an engineering project. Advanced concepts in project management such as resource planning and project closure are also taught.

Prerequisites: MET 425

MET 488W Senior Design Project I **2 credits**
An examination of manufacturing design and research. Students refine their design proposal and begin their senior design projects. This course also prepares the student for MET 489W, Senior Design Project II, where the design proposal, design project, and final report are completed. This course should be taken in the fall semester of the senior year.

Prerequisites: ENG 271W, MET 275, MET 425, 10 AET or MET 300/400 level credits

MET 489W Senior Design Project II **2 credits**
Completion of the capstone design project; a continuation of MET 488W.

Prerequisites: MET 488W, Permission Required

MET 492 Seminar: Manufacturing **1-4 credits**
Selected manufacturing topics.

MET 497 Internship: Manufacturing **1-10 credits**
Manufacturing work experience in an area pertinent to the student's objective. Consent of internship coordinator required prior to the beginning of employment and registration. Typically done between the junior and senior year.

Prerequisites: 50% of major

MET 499 Individual Study **1-4 credits**
Prerequisites: Permission Required

Marketing

MRKT 100 Foundations of Business Concepts **3 credits**
Focuses on the basic business functions of Accounting, Finance, Management, and Marketing in global context.

MRKT 210 Principles of Marketing **3 credits**
This course provides a basic understanding of marketing concepts with emphasis on the pricing, promotion, and distribution of need satisfying products and services in domestic and international markets. The format of the course consists of lectures, case discussions, application exercises, projects, exams, and in-class group assignments.

MRKT 312 Professional Selling **3 credits**

The course is designed to provide basic human motivation theories, and develop persuasive communications strategies and applications necessary in the field of professional selling. The course takes a hands-on approach to professional selling techniques with the use of sales presentations, sales manuals, and exams.

Prerequisites: MRKT 210

MRKT 316 Consumer Behavior **3 credits**

Students will learn about consumer decision styles, perceptions, group influences, family decision-making, lifestyles, shopping behaviors and domestic and international trends related to marketing strategies. The framework consists of individual or group projects, usually requiring some personal interviewing, exams, and reports.

MRKT 317 Product and Pricing Strategy **3 credits**

The intention of the course is to explore in depth the concepts involved in new product development, the management of products through the product life cycle, and the development of pricing policies and strategies. The course involves a lecture/discussion format with occasional group activities, projects and exams.

Prerequisites: MRKT 210

MRKT 318 Integrated Marketing Communications **3 credits**

Integrated Marketing Communications provide an understanding of the elements of the marketing communications mix; advertising, public relations, personal selling, sales promotion and corporate sponsorship through traditional and digital media.

Prerequisites: MRKT 210

MRKT 324 Marketing Research & Analysis **3 credits**

In this course, students will examine the role of research in decision making and the basics of scientific research, including the preparation of research proposals, design of data collection instruments, data analysis, interpretation, and reporting.

Prerequisites: MRKT 210, STAT 154 or ECON 207

MRKT 341 Supply Chain Management **3 credits**

A study of how supply chain management impacts all processes of the firm and its many trading partners. The supply chain management foundation elements of purchasing, operations, logistics, and integration are examined to show how a firm can improve its competitive position by employing these important foundation elements.

Prerequisites: MRKT 210

MRKT 398 CPT: Co-Operative Experience **0 credits**

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: Permission of the Chairperson of the department; co-op contract; other prerequisites may also apply.

MRKT 413 Business-to-Business Marketing **3 credits**

A broad examination of the techniques employed in business-to-business marketing. Topics include organizational buying, buyer-seller relationships and industrial marketing mix development.

Prerequisites: MRKT 210

MRKT 415 Retailing Management **3 credits**

The study of marketing at the retail level, including the organization, operations, methods, policies, and problems of retail establishments in satisfying consumers.

Prerequisites: MRKT 210

MRKT 416 Digital Marketing **3 credits**

This course is an examination of the role of digital technology, such as the Internet and social media platforms, in contemporary marketing strategy and its impact on business decision making and consumer behavior.

Prerequisites: MRKT 210

MRKT 420 Sales Management **3 credits**

This course involves studying the role of the general sales manager, the functions of sales management within overall marketing strategy, and the development of analytical decision skills necessary to plan, manage, and control the sales force.

Prerequisites: MRKT 210

MRKT 424 Advanced Professional Selling **3 credits**

Students will apply advanced professional selling concepts to multiple sales environments. Students will have opportunities to improve upon their communication, analytical/ problem solving skills and selling techniques through role-plays, case studies, technology tools and interactions with sales professionals.

Prerequisites: MRKT 210, MRKT 312

MRKT 428 International Marketing **3 credits**

This course takes a managerial approach to analyzing marketing decision making in multinational market situations.

Prerequisites: MRKT 210

MRKT 460 Social Media Marketing **3 credits**

This course examines how organizations capitalize on social media and takes advantage of the consumer-to-consumer interactions in order to support their marketing efforts. Students will get hands-on experience creating comprehensive social media strategies for active brands.

Prerequisites: MRKT 210

MRKT 480 Seminar **3 credits**

Topics covered are specialized topics not covered in other courses and will be announced.

Prerequisites: MRKT 210

MRKT 490 Marketing Management **3 credits**

This course should be the last marketing class taken, since it involves comprehensive marketing strategy development, integrating all dimensions of the marketing offering, and utilizing marketing information systems for top-level control and decision making.

Prerequisites: MRKT 316, MRKT 317, and MRKT 318. MRKT 210 or MRKT 310. MRKT 339 or MRKT 341

MRKT 492 Study Tour **3 credits**

Study tours are led by Minnesota State University, Mankato faculty and provide students with opportunities to visit companies and attend lectures by renowned experts from key sectors of economy, government, and business.

MRKT 494 Fair Trade Study Abroad in Belize **3 credits**
The curriculum focuses on Fair Trade, sustainability, and international business principles. Students will spend 9 days in Belize and learn about diverse populations, engage in a service-learning project, and visit businesses who produce goods that are Fair Trade certified. Diverse Cultures: Gold

MRKT 496 Professional Sales Internship **3 credits**
Individual, supervised work experience in a sales organization. Taken for grade only. Approval by Internship Coordinator.
Prerequisites: MRKT 210, MRKT 312

MRKT 497 Internship **1-9 credits**
Individual, supervised experience in a business firm or government agency. Taken for P/N only.
Prerequisites: MRKT 210

MRKT 498 Internship **3 credits**
Individual, supervised experience in a business firm or government agency. Taken for grade only.
Prerequisites: MRKT 210

MRKT 499 Individual Study **1-4 credits**
Individual study of special topics.
Prerequisites: Consent

Mathematics

MATH 092 College Algebra-corequisite **1 credit**
This is a corequisite course for Math 112 College Algebra. Students who do not meet the required prerequisite for Math 112 can take this course simultaneously with MATH 112 to further develop the skills needed for successful completion of the course. MATH 092 consists of Intermediate Algebra topics such as properties of real numbers, polynomials, linear and quadratic equations, linear and quadratic functions, domain and range, and topics in logarithms and exponentials. Corequisite: MATH 112.

MATH 094 Essential Mathematics with Elementary Algebra **4 credits**
Basic mathematics skills integrating the fundamental operations of whole numbers, integers, fractions, decimals, percents, ratio and proportion with the elementary algebra topics of linear equations and inequalities, graphs, exponents, polynomials and factoring. Credit does not apply toward graduation. P/N only.

MATH 098 Intermediate Algebra **4 credits**
Topics covered include intermediate study of graphs, systems of linear equations, introduction to functions, linear and nonlinear inequalities, factoring, rational expressions and equations, radicals, and basic quadratic equations. Credit does not apply toward graduation. P/ N only.

MATH 105 Precalculus Corequisite **1 credit**
This is a corequisite course for Math 115 Precalculus. Students who do not meet the required prerequisite for Math 115 can take Math 115 concurrently by taking this course which consists of practice sessions that will help students with less mathematical background to catch up with material in Math 115. This course will cover the foundational material to be used in Calculus. Topics will include functions, graphs of elementary functions, systems of equations and inequalities, matrices, trigonometric functions, vectors and complex numbers.
Corequisites: MATH 115

MATH 110 Perspectives in Mathematics **3 credits**
A survey of mathematics and its relationship to society, showing its development and evolution to meet the needs of mankind.
Prerequisites: Three years high school algebra/geometry or MATH 098

MATH 112 College Algebra **4 credits**
Concepts of algebra (real numbers, exponents, polynomials, rational expressions), equations and inequalities, functions and graphs, polynomial and rational functions, exponential and logarithmic functions, systems of equations and inequalities, matrices and determinants, conic sections, sequences and series, probability, and binomial theorem.
Prerequisites: Satisfy Placement Table in this section, or MATH 098 with grade of P.

MATH 113 Trigonometry **3 credits**
Basic concepts of trigonometry as preparation for college level mathematics and science course work. Topics include concepts of algebra (real numbers, functions, graphs of functions, exponential and logarithmic functions), trigonometric functions, analytic trigonometry, applications of trigonometry, and analytic geometry.
Prerequisites: Satisfy Placement Table in this section, or MATH 112 with "C" (2.0) or better.

MATH 115 Precalculus Mathematics **4 credits**
This course will cover topics of precalculus mathematics. Topics covered will include functions, graphs of functions, exponential and logarithmic functions, conic sections, systems of equations and inequalities, matrices, trigonometric functions, circular functions, vectors and complex numbers, induction, series and probability.
Prerequisites: Satisfy Math Placement Table in this section, or grade of P in MATH 098.

MATH 121 Calculus I **4 credits**
Limits, continuity, the derivative and applications, transcendental functions, L'Hopital's Rule, and development of the Riemann integral.
Prerequisites: Satisfy Placement Table in this section, MATH 115 or both MATH 112 and MATH 113 with "C" (2.0) or better.

MATH 122 Calculus II **4 credits**
Techniques of integration, applications of integration, improper integrals, numerical integration, the calculus of parametric curves, and infinite series and sequences.
Prerequisites: MATH 121 with "C" (2.0) or better or consent

MATH 127 Calculus II for Engineering Technology:

Integration **2 credits**
A continuation of the study of calculus from MATH 121 including transcendental functions, L'Hopital's rule, techniques of integration, and vectors in two and three dimensions. Content is intended for students enrolled in any engineering technology program. Credit for both MATH 127 and MATH 122 is not allowed.

Prerequisites: MATH 121 with "C" (2.0) or better or consent

MATH 130 Finite Mathematics and Introductory Calculus **4 credits**

This course develops concepts and skills in algebra and introductory calculus needed to model applications in business, economics, social sciences and life sciences, using polynomials, exponentials, logarithms, linear systems, linear programming, sequences, series, derivatives and integrals.

Prerequisites: Satisfy Placement Table in this section, or grade of "C" (2.0) or better in either MATH 112 or MATH 115.

MATH 170 Introduction to Mathematical Software Programming **3 credits**

Students will learn the rudiments of algorithmic processes such as iteration and recursion and implement simple mathematical algorithms in a commonly used mathematical software package. Applications may include graphing, equation solving, numerical approximation, recurrence relations, and generation of mathematical objects such as sets, lists, permutations and trees.

Prerequisites: MATH 121

MATH 180 Mathematics for Computer Science **4 credits**

This course is an introduction to the mathematical concepts needed in computer science, including sets, logic, representations of numbers, counting techniques, discrete functions, matrices, trees and graphs, and algorithm analysis.

Prerequisites: MATH 112 or equivalent, with "C" (2.0) or better, or consent

MATH 181 Intuitive Calculus **3 credits**

This course presents the concepts of the differential and integral calculus from an intuitive (non-theoretical) point of view. The course emphasis is on the applications of calculus. Credit for both MATH 181 and MATH 121 is not allowed.

Prerequisites: Satisfy Placement Table in this section, or Math 112 with "C" (2.0) or better.

MATH 201 Elements of Mathematics I **3 credits**

Nature of mathematics from a problem-solving approach using sets, relations, number systems through integers, rational numbers and discrete mathematics.

Prerequisites: Satisfy Placement Table in this section, or Grade of P in MATH 098 or "C" (2.0) or better in MATH 112 or MATH 115.

MATH 202 Elements of Mathematics II **3 credits**

A continuation of MATH 201, including rational and real number systems, informal geometry and measurement, statistics, and probability.

Prerequisites: MATH 201, with "C" (2.0) or better or consent

MATH 203 Elements of Math III **3 credits**

Transformational and Euclidean geometry, coordinate geometry and applications of discrete mathematics.

Prerequisites: MATH 202 with "C" (2.0) or better or consent

MATH 223 (4.00) Calculus III **4 credits**

Surfaces, vector-valued functions, partial differentiation, multiple integration, and vector calculus.

Prerequisites: MATH 122 with "C" (2.0) or better, or consent

MATH 247 Linear Algebra I **4 credits**

Matrices, determinants, systems of linear equations, vector spaces, linear transformations, and characteristic value problems.

Prerequisites: MATH 122 with "C" (2.0) or better or consent

MATH 280 Discrete Mathematics for Computer Science I **4 credits**

This course is an introduction to mathematical concepts needed in computer science, including sets, relations and functions, propositional logic, proof techniques, recurrence relations, graphs and trees, and discrete probability. This course is not intended for students pursuing a degree in mathematics.

Prerequisites: MATH 121 with "C" (2.0) or better or consent.

MATH 290 Foundations of Mathematics **4 credits**

Logic, proof techniques, set theory, relations, functions, cardinality, operations, and an introduction to mathematical structures and number theory.

Prerequisites: MATH 122 with "C" (2.0) or better or consent.

MATH 316 Intermediate Analysis **3 credits**

Limits, sequences, continuity, and differentiation of a real valued function of a real variable.

Prerequisites: MATH 223 and MATH 290 with "C" (2.0) or better or consent

MATH 321 Ordinary Differential Equations **4 credits**

This course presents the theory, computations, and applications of first and second order differential equations and two-dimensional systems.

Prerequisites: MATH 122 with "C" (2.0) or better or consent

MATH 332 College Geometry **4 credits**

This course covers several geometric systems including Euclidean, non-Euclidean, transformational and projective. Other topics studied are topological properties and the relationship between coordinate and synthetic geometry.

Prerequisites: MATH 290 with "C" (2.0) or better or consent

MATH 345 Abstract Algebra I **4 credits**

An introduction to the theory of groups and rings; including polynomial rings, homomorphisms, isomorphisms, and concepts of normal subgroups, ideals, quotient groups, and quotient rings.

Prerequisites: MATH 290 with "C" (2.0) or better or consent

MATH 354 Concepts of Probability & Statistics **4 credits**

A calculus-based introduction to probability and statistics. Topics include probability, random variables, probability distributions (discrete and continuous), joint probability distributions (discrete and continuous), statistical inference (both estimation and hypothesis testing), confidence intervals for distribution of parameters and their functions, sample size determinations, analysis of variance, regression, and correlation. This course meets the needs of the practitioner and the person who plans further study in statistics. Same as MATH 354. Fall, Spring, Summer

Prerequisites: MATH 122 with "C" (2.0) or better or consent

MATH 375 Introduction to Discrete Mathematics 4 credits
MATH 375 Introduction to Discrete Mathematics (4 credits) An introduction to the concepts fundamental to the analysis of algorithms and their realization. Topics will include combinatorics, generating functions, recurrence relations, graph theory, and networks.
Prerequisites: MATH 247 and MATH 290 with grade of "C" (2.0) or higher.

MATH 380 Discrete Mathematics for Computer Science II 4 credits
A continuation of the topics from MATH 280. The major focus of the course is understanding and analyzing algorithms, including proving that algorithms perform correctly. Topics include modular arithmetic, counting problems, sorting algorithms and constructions on graphs. This course is not intended for students pursuing a major degree in mathematics.
Prerequisites: MATH 247 and MATH 280 with a grade of "C" (2.0) or better

MATH 398 CPT: Co-Operative Experience 0 credits
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one semester and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.
Prerequisites: At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

MATH 402 Introduction to Topology 4 credits
An introduction to topological spaces and their fundamental properties such as compactness, connectedness, separation properties and countability properties. Continuous functions between topological spaces and common examples of topological spaces are also discussed.
Prerequisites: MATH 290 with grade of "C" (2.0) or higher.

MATH 411 Introduction to Complex Variables 4 credits
Algebra and geometry of complex numbers, analytic functions, power series, Cauchy's theorem and residue theorem.
Prerequisites: MATH 223 and MATH 290 with "C" (2.0) or better or consent

MATH 417 Real Analysis I 4 credits
The topology of Euclidean spaces, compact and connectedness, properties of continuous functions, differentiation, basic theory of Riemann-Stieltjes integration and the fundamental theorem of Calculus.
Prerequisites: MATH 223 and MATH 290 with "C" (2.0) or better or consent

MATH 418 Real Analysis II 3 credits
A continuation of Math 417. The course may include topics from metric spaces, Riemann-Stieltjes integration, differentiation in Euclidean space, sequences and series of functions, approximation theorems, implicit and inverse function theorems, equicontinuity, and mapping theorems.
Prerequisites: MATH 417 with "C" (2.0) or better or consent

MATH 422 Partial Differential Equations 4 credits
This course presents the theory, computations, and applications of partial differential equations and Fourier series.
Prerequisites: MATH 223 and MATH 321 with "C" (2.0) or better or consent

MATH 425 Mathematical Modeling 4 credits
This course presents topics from mathematical analysis of both discrete and continuous models taken from problems in the natural sciences, economics and resource management.
Prerequisites: MATH 223 and MATH 247 with "C" (2.0) or better or consent

MATH 428 Linear Optimization Methods 4 credits
Simplex method and its variants, duality, sensitivity analysis, interior-point methods, quadratic programming and linear complementarity problems. Applications such as classification problems and game theory with linear optimization software.
Prerequisites: MATH 122, MATH 247

MATH 435 Modern Geometry 4 credits
Geometry of spaces including Euclidean and non-Euclidean and applications of contemporary geometry.
Prerequisites: MATH 247 and MATH 290 with grade of "C" (2.0) or higher or consent.

MATH 442 Theory of Numbers 4 credits
Euclidean algorithm, primes, composites, number theoretic functions, congruencies, Diophantine equations, Euler and Fermat theorems, algebraic number fields.
Prerequisites: MATH 345 with "C" (2.0) or better or consent

MATH 446 Abstract Algebra II 4 credits
A continuation of MATH 345. The course will include topics from groups, rings, and fields.
Prerequisites: MATH 345 with "C" (2.0) or better or consent

MATH 447 Linear Algebra II 3 credits
An in-depth study of linear operators and their related spaces, dimension, rank, matrix representation of linear operators, special matrices, determinants, eigenvectors and eigenvalues.
Prerequisites: MATH 345 with "C" (2.0) or better or consent

MATH 455 Theory of Statistics I 4 credits
A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications. Includes probability, continuous probability distributions, multivariate distributions, functions of random variables, central limit theorem and statistical inference. Same as STAT 455.
Prerequisites: MATH 223 with "C" (2.0) or better or consent

MATH 456 Theory of Statistics II 4 credits
A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications, including sufficient statistics, additional statistical inference, theory of statistical tests, inferences about normal models and nonparametric methods. Same as STAT 456.
Prerequisites: MATH 455 / STAT 455 with "C" (2.0) or better or consent

MATH 460 Actuarial Applications in Probability 3 credits
This course applies probabilistic methods to problems encountered in actuarial science that prepares students for the Society of Actuaries Exam P/1.
Prerequisites: (MATH 354, STATS 354, MATH 455 or STAT 455) and MATH 223

MATH 461 Mathematical Theory of Interest 4 credits
This course covers all the topics in the mathematical theory of interest of the Society of Actuaries Exam FM/2. Topics include time value of money, measurement of interest, annuities certain, arithmetic and geometric annuities, amortization schedules and sinking fund, bonds and other securities, yield rates, and interest rate immunization.

Prerequisites: MATH 122 with C (2.0) or better or consent.

MATH 470 Numerical Analysis I 4 credits
This course provides an introduction to techniques and analysis involved with solving mathematical problems using technology. Topics included are errors in computation, solutions of linear and nonlinear equations, numerical differentiation and integration, and interpolation.

Prerequisites: MATH 122, MATH 247 with "C" (2.0) or better or consent

MATH 471 Numerical Analysis II 4 credits
This course is a continuation of MATH 470. Topics included are the algebraic eigenvalue problem, least squares approximation, solutions of systems of nonlinear equations, numerical solutions of ordinary differential equations.

Prerequisites: MATH 470 and MATH 223 with "C" (2.0) or better or consent

MATH 475 Advanced Mathematical Software Programming 4 credits
Students will learn fundamental concepts of computer programming and write software to implement a variety of mathematical algorithms, manipulate large amounts of data, test conjectures, and make abstract mathematical concepts concrete. Programming concepts include input versus output, data structures, local and global variables, switch statements, iteration, recursion, halting conditions, modularity, debugging, and algorithm analysis. Programming projects may vary with instructor, but could include topics from enumerative combinatorics, graph theory, group theory, linear algebra, and number theory.

Prerequisites: Math 345 and Math 375 with a "C" (2.0) or better, and senior standing or consent.

MATH 480 History of Mathematics 3 credits
The development of selected topics from before the Hellenistic time period to the late twentieth century. Familiarity with the content of HIST 180 is beneficial.

Prerequisites: MATH 345 with "C" (2.0) or better or consent

MATH 483 Advanced Viewpoint of 5-8 School Mathematics 3 credits
Advanced viewpoint of mathematics content and learning theories, teaching strategies, reading strategies, assessments, and planning, teaching and reflecting on grades 5-8 mathematics. Field experiences in grades 5-8 mathematics classroom required.

Prerequisites: MATH 290 with "C" (2.0) or better or consent

MATH 484 Technology in 5-12 School Mathematics 3 credits
Numerical, verbal, symbolic and graphical representations of quantitative relationships, concatenations in written mathematics, problem solving, dynamic geometry, perspective drawing, parametric equations, geometric probability, transition matrices, statistics and calculus using technology.

Prerequisites: MATH 290 with "C" (2.0) or better or consent

MATH 485 Teaching Secondary School Mathematics 3 credits
Learning theories, teaching strategies, assessments and planning, teaching and reflecting on secondary (grades 9-12) school mathematics. Field experiences in grades 9-12 mathematics classroom required.

Prerequisites: MATH 290 with "C" (2.0) or better or consent

MATH 487 Teaching Experiences in Mathematics 1 credit
Student will work with an experienced member of the faculty in teaching a college mathematics course.

MATH 488 Seminar 1-3 credits
A course of study in which a group of students study a topic by examining results through reports and discussions. May be repeated for credit on each new topic.

MATH 490 Workshop 1-4 credits
A short course devoted to a specific mathematical topic. May be repeated for credit on each new topic.

MATH 491 In-Service 1-4 credits
A course designed to upgrade the qualifications of persons on-the-job. May be repeated for credit on each new topic.

MATH 492 Mathematics Capstone Experience 3 credits
This course is designed to allow undergraduate students an opportunity to integrate their undergraduate mathematics experiences by engaging each student in working on a problem in applied or theoretical mathematics. In doing so, students will see connections between the various topics found in the undergraduate mathematics curriculum. Content will vary by semester. An important component of this course will be the preparation and presentation of a research paper describing the student's progress toward a solution of the problem under consideration. Problems will arise from the course content and materials as presented by the instructor. Because of the breadth of mathematical topics needed for successful completion of the course, students need to have senior standing.

Prerequisites: Two of the following: MATH 316, MATH 321, MATH 345, MATH 375 and senior standing (or permission of the instructor). Course can also be taken independent study with permission of a cooperating faculty member.

MATH 492W Mathematics Capstone Experience 3 credits
This course is designed to allow undergraduate students an opportunity to integrate their undergraduate mathematics experiences by engaging each student in working on a problem in applied or theoretical mathematics. In doing so, students will see connections between the various topics found in the undergraduate mathematics curriculum. Content will vary by semester. An important component of this course will be the preparation and presentation of a research paper describing the student's progress toward a solution of the problem under consideration. Problems will arise from the course content and materials as presented by the instructor. Because of the breadth of mathematical topics needed for successful completion of the course, students need to have senior standing.

Prerequisites: Two of the following: MATH 316, MATH 321, MATH 345, MATH 375 and senior standing (or permission of the instructor). Course can also be taken independent study with permission of a cooperating faculty member.

MATH 495 Selected Topics 1-4 credits
A course in an area of mathematics not regularly offered. May be repeated for credit on each new topic.

MATH 498 Internship **1-12 credits**
Provides a student the opportunity to gain expertise and experience in a special field under the supervision of a qualified person.

MATH 499 Individual Study **1-4 credits**
Independent individual study under the guidance and direction of a faculty member in mathematics. Special arrangements must be made with an appropriate faculty member. May be repeated for credit on each new topic.

Mechanical Engineering

ME 100 Explorations in Engineering **1 credit**
This course offers an introduction to the various disciplines of engineering and their relationship to the principles of physics and mathematics. Students are prepared for academic success and the transition into an engineering program.

ME 101 Introduction to Engineering – Mechanical **2 credits**
To prepare students for a career in engineering with emphasis on mechanical; introduce the engineering fundamentals and the skills necessary to have a successful learning experience; and to prepare students for engineering education and profession through interactions with upper-class engineering students and practitioners.

Prerequisites: ACT Math Subscore of 23 or higher.

ME 102 Introduction to Engineering II **1 credit**
A continuation of ME 101 covering historical and global perspectives, engineering discipline and functions, professional aspects of engineering, ethical aspects of engineering, creativity and innovation, basics of personal computers-word processing and spreadsheets, introduction to problem solving.

ME 103 Computer Graphics Communication **1 credit**
Standards of graphics communication. Orthographic projections, dimensioning, tolerancing, section views. Extensive use of modern software to create engineering drawings. Introduction to solid modeling of parts and assemblies. This course includes laboratory component.

ME 201 Introduction to Problem Solving and Engineering Design **2 credits**
This course has two main parts. Part one covers problem solving and fundamentals of programming including data types, decision making, repetitive loops, and arrays. Engineering applications requiring programming are included. Part two covers engineering design philosophy and methodology, communication skills, and teamwork. A design project is also included.

Prerequisites: ME 101

Corequisites: ME 103, MATH 121

ME 203 Geometric Dimensioning and Tolerancing in Engineering Design **2 credits**
This course is intended to provide the students with an understanding of the principles and methodologies of geometric dimensioning and tolerancing. Topics include: Datums, Material condition symbols, Tolerances of Form and profile, Tolerances of orientation and runout, locations tolerances, and Virtual condition. This course includes laboratory component. Coreq: ME 103

Prerequisites: ME 103, ME 201

ME 212 Statics **3 credits**
Resultants of force systems, equilibrium, analysis of forces acting on structural and machine elements, friction, second moments, virtual work.

Prerequisites: PHYS 221

ME 213 Statics and Dynamics for Electrical Engineers **3 credits**
This course consists of two components: 1) Statics Introduction to resultants of force systems, equilibrium, analysis of forces acting on structural and machine elements, friction, second moments. 2) Dynamics Introduction to kinematics and kinetics of particles, systems of particles and rigid bodies, work-energy.

ME 214 Dynamics **3 credits**
Kinematics and kinetics of particles, systems of particles and rigid bodies, work-energy, linear and angular impulse momentum, vibrations.

Prerequisites: ME 212

ME 223 Mechanics of Materials **3 credits**
Load deformation, stress, strain, stress-strain relationship, buckling, energy concepts, stress analysis of structural and machine elements.

Prerequisites: ME 212

ME 240 Building Systems Documentation **1 credit**
Communicating technical information about building systems including mechanical, electrical, and plumbing (MEP) systems. Students will learn to read and interpret mechanical plans as well as piping and instrumentation diagrams (P&ID).

Prerequisites: ME 103 or instructor permission or instructor permission.

ME 241 Thermodynamics **3 credits**
Fundamental concepts of thermodynamics. Thermal properties of substances and state equations. Conservation of mass, first and second laws. Examples of applications to different engineering systems.

Prerequisites: PHYS 221

ME 281 Computing Techniques for Mechanical Engineering Analysis **2 credits**
This course is an introduction to numerical analysis. The primary objective of the course is to develop a basic understanding of numerical algorithms and skills to implement algorithms to solve mathematical problems on the computer.

Prerequisites: MATH 122, ME 201

ME 291 Engineering Analysis **3 credits**
Probability and statistics. Uncertainty, distributions. Numerical solution of algebraic, transcendental and differential equations. Numerical integration and differentiation. Structured programming language required.

Prerequisites: MATH 122, PHYS 221. Select one from EE 107, CIVE 201, ME 201

ME 297 Internship **1-4 credits**
ME 299 Thermal Analysis **2 credits**
Basic principles of thermodynamics, fluid mechanics, and heat transfer. First and second laws of thermodynamics and application to engineering systems and their design. Not for mechanical engineering major.

Prerequisites: PHYS 221 with "C-" (1.67) or better

ME 306 Materials Science 3 credits Physical principles of elastic and plastic deformation of materials. Dislocation theory. Fatigue, creep, fracture, hardness, phase diagrams and other mechanical phenomena in materials. Ceramics and composite materials. Residual stresses. Lecture and lab demonstrations. Prerequisites: ME 223	ME 398 CPT: Co-Operative Experience 0 credits Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information. Prerequisites: ME 201. At least 60 credits earned; in good standing; instructor permission; co-op contract; other Prerequisites may also apply.
ME 321 Fluid Mechanics 3 credits Introduction to fluid properties, fluid statics, buoyancy, fluid kinematics, Bernoulli's equation, control volume and differential approach to flow conservation equations, dimensional analysis, similitude, viscous flow in pipes, flow over immersed bodies, and pumps. Includes significant design component. Prerequisites: MATH 223, ME 214	ME 415 Structural Analysis 3 credits Minimum design loads for buildings using ASCE 7 guidelines and load distribution. Analysis of determinate structural systems including the case of moving loads. Analysis of indeterminate structures using the flexibility and moment distribution methods. Use of software to enhance the analysis. Prerequisites: ME 223
ME 324 Heat Transfer 3 credits Steady and unsteady conduction. Free and forced convection. Heat transfer by radiation. Combined modes of heat transfer. Elements of heat exchangers design. Includes significant design component. Prerequisites: ME 241, ME 321	ME 416 Thermal/Fluid Systems Design 3 credits The application of the principles of thermodynamics, fluid mechanics, and heat transfer to the design and analysis of selected energy systems of current interest, such as nuclear, solar, geothermal, and also conventional systems. Lecture and design projects. Prerequisites: ME 324, ME 329
ME 329 Applied Thermodynamics 3 credits Energy analysis and design of thermodynamic systems including power and refrigeration cycles. Thermodynamic relations. Application of thermodynamics to mixtures and solutions. Psychometrics. Introduction to chemical thermodynamics. Third law of thermodynamics. Includes significant design component. Prerequisites: CHEM 191, ME 241	ME 417 Design of Machine Elements 3 credits Application of principles of mechanics to the design of various machine elements such as gears, bearings, springs, rivets, welding. Stresses in mechanical elements. Design factors, fatigue, manufacturability. Lectures and design projects. Includes significant design content. Prerequisites: ME 214, ME 223
ME 333 Manufacturing Processes 3 credits Introduction to manufacturing, tribology, casting, bulk deformation, sheet metal forming, material removal, joining, polymers, powder metals, ceramics, automation, integrated systems. Design for manufacture. Includes significant design component. Prerequisites: ME 206, ME 223	ME 418 Mechanical Systems Design 3 credits The application of mechanics to the design and analysis of motion and force transmitting systems. Optimum design. Includes significant design component. Prerequisites: ME 417
ME 336 Mechanical Engineering Experimentation I 2 credits Experiments in Mechanical Engineering, load-deformation, load-failure, fatigue, impact, hardness. Introduction to traditional machining and material processing. This course includes laboratory. Prerequisites: ME 306	ME 420 Computer Aided Engineering 3 credits This course provides the students with sound understanding of both solid modeling techniques and finite element analysis. It covers the major features as well as feature manipulation techniques. It also provides a background in deriving, understanding and applying the stiffness matrices and finite element equations for various types of finite elements and systems. Static stress analyses, sensitivity studies and optimization studies are covered. Includes significant design component. Prerequisite: ME 203, ME 324, ME 417 Fall Prerequisites: ME 203, ME 324, ME 417
ME 341 Linear Systems 3 credits Analysis of linear systems in the time and frequency domains. Physical systems modeled and analyzed using time domain techniques. Fourier and Laplace Transforms. Prerequisites: ME 201, ME 214, PHYS 222, EE 230, PHYS 232, EE 240, ME 281, MATH 321	ME 422 Mechanics of Composite Materials 3 credits Introduce anisotropic mechanics theories, engineering application of various composite materials, mechanical behaviors and fabrication of composites, experimental and theoretical approach for composite designs, contemporary issues such as nano/microcomposites. Includes significant design component. Prerequisites: ME 223
ME 344 Instrumentation 3 credits Probability and statistics and its application to mechanical measurements. Principles of operation of devices and systems to measure various quantities that arise in mechanical engineering. Conditioning and digitization of signals during the measurement process is also discussed. Prerequisites: ME 203, ME 214, EE 230, EE 240	

ME 424 Analysis and Design of Heat Transfer Equipment 3 credits
Analysis of heat and mass flow, design of heat exchangers and accompanying piping system. Methods of heat transfer enhancement, heat pipes. Includes significant design component.

Prerequisites: ME 324

ME 426 Aerosol Theory and Technology 3 credits
Introduction to the theory of aerosols and particulate systems. Properties, behavior, and physical principles of aerosols; including particle size statistics. Brownian motion and diffusion, and coagulation. Application in areas such as environmental systems, respiratory deposition, bioterrorism, and materials processing.

ME 428 Design Project I 3 credits
The first course in a two-semester sequence that provides a complete design experience under professional guidance. The course covers: the product realization process, financial analysis, quality, patents, ethics and case studies. The students initiate a design project early in the semester to be completed in ME 438. Prereq: senior standing in ME

Prerequisites: ME 324, ME 329, ME 333, ME 336, ME 341, ME 417

ME 429 Energy Conversion 3 credits
Methods of energy conversion. Topics may include hydroelectric, geothermal, wind and solar power generation, as well as unconventional methods of energy conversion. Term design problems.

Prerequisites: ME 324, ME 329

ME 431 Building Information Modeling (BIM) for HVAC&R Engineers 1 credit
Exploration of the principles and application of Building Information Modeling (BIM) in the HVAC&R industry. Course will include a practice project in the HVAC field using Autodesk Revit.

Prerequisites: Instructor Permission

ME 432 HVAC&R Systems and Applications 1 credit
This course will focus on the typical HVAC&R systems and components in use today. Basic operation, advantages and disadvantages, as well as system integration will be discussed.

Prerequisites: ME 321, ME 324, ME 329 or instructor permission.

ME 433 Design for Manufacturing and Assembly 3 credits
This course introduces the concepts and roles of Design for Manufacturing and Assembly (DFMA) in product specification and standardization, design rules/principles for typical manufacturing and assembly (including manufacturing processes analysis and approach towards robust design and manual and automatic/robotic assembly) processes, methods of material, shape and process selections, design for quality and reliability, design for manual/automatic (robotic) assembly, case studies on design for manufacturing and assembly with/without the aid of software.

ME 436W Mechanical Engineering Experimentation II 2 credits
Experimental and analytical studies of phenomena and performance of fluid flow, heat transfer, thermodynamics, refrigeration and mechanical power systems. Extensive writing component.

Prerequisites: ME 291, ME 324, ME 329

ME 438W Design Project II 3 credits
The second course of a two-semester sequence providing a complete design experience and introduction to professional practice. This course includes: completion of the design project, design presentations, and the final design report. Students will prepare for and complete the Fundamentals of Engineering exam.

Prerequisites: ME 428

ME 439 Heating Ventilating and Air Conditioning Design 3 credits
Refrigeration cycles and equipment, refrigerant properties, heating and cooling loads, psychometric analysis of air conditioning. Distribution of air conditioning medium and air quality as applied to design. Includes significant design component.

Prerequisites: ME 324, ME 329

ME 440 Introduction to Computational Fluid Dynamics 3 credits
This course introduces the numerical methods used for solving partial differential and integral equations of the type commonly occurring in fluid mechanics and heat transfer. The course provides a background in geometry and mesh generation, solution processes, and post-processing. Error control and numerical stability will be discussed. Numerical solutions for selected problems in fluid mechanics and heat transfer will be derived. Students will learn to use a commercial CFD software package. Includes significant design component.

ME 447 Design of Machine Elements II 3 credits
Application of principles of mechanics of materials and of material failure theories to the design and analysis of shafts, journal bearings, helical, bevel and worm gears, clutches, brakes, couplings, and flexible mechanical elements. Statistical considerations. Includes significant design content.

Prerequisites: ME 417

ME 450 Finite Element Method 3 credits
Energy and residual methods, 2D and 3D problems in stress analysis. Application of steady and transient heat flow, hydrodynamics, creeping flow. Includes significant design component.

Prerequisites: ME 223 and ME 324 or instructor consent

ME 463 Automatic Controls 3 credits
Analysis of control systems using the methods of Evans, Nyquist and Bode. Improvement of system performance by feedback compensation. Introduction to digital control. Includes significant design component.

Prerequisites: ME 341

ME 464 Mechatronics 3 credits
Synergistic combination of mechanical engineering, electronics, controls and programming in the design of mechatronic systems. Sensors, actuators and microcontrollers. Survey of the contemporary use of embedded microcontrollers in mechanical systems, case studies. Includes significant design component.

Prerequisites: ME 417, ME 463

ME 466 Mechanical Engineering Experimentation III **2 credits**
Experiments in vibrations: Motion measurement, force measurement, free vibration, frequency response, impact response, noise, signal processing. Experiments in control: system modelling and characterization in the time and frequency domains, feedback and compensation, PID control, control of velocity and position. This course includes laboratory.

Prerequisites: ME 463

ME 466W Mechanical Engineering Experimentation III **2 credits**
Experiments in vibrations: Motion measurement, force measurement, free vibration, frequency response, impact response, noise, signal processing. Experiments in control: system modelling and characterization in the time and frequency domains, feedback and compensation, PID control, control of velocity and position. This course includes laboratory. Extensive writing component.

Prerequisites: ME 344, ME 463

ME 483 Aircraft Stability and Control **3 credits**
Principles of generation of lift and drag for infinite wing and finite wing are discussed. The linearized equations of motion for atmospheric flight are developed. Longitudinal and lateral motions of the airplane are studied with particular emphasis on the phugoid, short-period, dutch-roll, and spiral motions. Static stability and control requirements for airplane design are considered. Design of autopilots from stability and controls standpoint.

ME 491 In-Service **1-4 credits**

ME 492 Mechanical Engineering Seminar **1 credit**
To acquaint students with various engineering careers, various industries, and various societal and ethical problems.

Prerequisites: Senior standing in Mechanical Engineering

Corequisites: ME 428

ME 494 Global Experience in Engineering and Technology **1 credit**
This class provides students pursuing a minor in "Global Solutions in Engineering and Technology" with an opportunity to explore a set of topics related to achieving success in advance of and following an international experience (internship, study abroad, etc.). Speakers will include faculty, graduate students, visiting researchers and industry members as well as student participants. Returning students will be required to participate in mentoring of students preparing for their international experience and provide written and/or oral presentations of various topics during the semester. This course is required both before and after participation in the international experience (min. 2 cr.)

ME 497 Internship **1-6 credits**
ME 499 Individual Study **1-6 credits**

Medical Technology

MEDT 410 Clinical Hematology I **1-10 credits**
Theory of blood cell formation; disease states; hemostasis, microscopic examination of blood/bone marrow films; practical experience with instruments and techniques which determine major hematologic and clotting parameters; quality control.

MEDT 411 Clinical Immunohematology I **1-10 credits**
Major blood group systems; principles and procedures for antigen/antibody detection, identification; donor blood collection, preservation, processing; component therapy; transfusion reaction evaluation; Rh immune globulin; quality control.

MEDT 412 Clinical Immunology I **1-10 credits**
Antigen/antibody structure function and interaction; basic principles and procedures of humoral and cellular immunology; performance and clinical correlation of serological testing; quality control.

MEDT 413 Clinical Chemistry I **1-10 credits**
Identification and quantification of specific chemical substances in blood and body fluids by analytical techniques; clinical correlation with disease states; principles of instrumentation; data processing; toxicology; quality control.

MEDT 414 Clinical Microbiology I **1-10 credits**
Theory and techniques of cultivation, isolation and identification of bacteria, fungi, parasites and viruses; determination of sensitivity to antimicrobial agents; clinical correlation to disease states, asepsis; environmental monitoring; quality control.

MEDT 415 Clinical Microscopy I **1-10 credits**
Theory of renal function in health and disease; renal function tests including chemical and microscopic examination of urine; analysis of fecal specimens, gastric, spinal fluid and other body fluids; quality control.

MEDT 416 Clinical Hematology II **1-10 credits**
A continuation of Clinical Hematology I

MEDT 417 Clinical Immunohematology II **1-10 credits**
A continuation of Clinical Immunohematology I.

MEDT 418 Clinical Chemistry II **1-10 credits**
A continuation of Clinical Chemistry I.

MEDT 419 Clinical Microbiology II **1-10 credits**
A continuation of Clinical Microbiology I.

MEDT 420 Clinical Microscopy II **1-10 credits**
A continuation of Clinical Microscopy I.

MEDT 499 Individual Study **1-6 credits**
Related topics in medical technology.

Military Science and Leadership

MSL 101 Intro to the Army & Critical Thinking **1 credit**
Introduces Cadets to the personal challenges and competencies critical for effective leadership. Cadets learn how the personal development of life skills such as critical thinking, time management, goal setting, stress management, and comprehensive fitness relate to leadership, and the Army profession.

MSL 102 Intro to the Profession of Arms **1 credit**
Cadets will learn how Army ethics and values shape the Army and the specific ways that these ethics are inculcated into Army culture. Cadets can expect to explore the seven Army Values, Warrior Ethos, explore the Profession of Arms, Army Leadership and critical communication

MSL 150 Leadership Lab 1 credit

This class is the associated leadership lab for the MSL classes. It is the hands-on portion where individual and collective military tasks are practiced and leadership lessons are applied. Students must be enrolled in ROTC to take this course.

Corequisites: MSL 101, MSL 102, MSL 201, MSL 202, MSL 299, MSL 301, MSL 302, MSL 401, MSL 402, MSL 499

MSL 201 Leadership & Decision Making II 2 credits

Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership framework. Aspects of personal motivation and team building are practiced planning, executing and assessing team exercises.

MSL 202 Army Doctrine & Team Development 2 credits

Examines the challenges of leading teams in the complex operational environment. The course highlights dimensions of terrain analysis, patrolling, and operation orders. Further study of the theoretical basis of the Army Leadership Requirements Model explores the dynamics of adaptive leadership in the context of military operations. Cadets develop greater self-awareness as they assess their own leadership styles and practice communication and team building skills.

MSL 210 Army Physical Fitness 1 credit

This class is open to all students. Please note, this is a physically demanding class. It is a comprehensive fitness program based on the latest military fitness techniques and principles. Students participate in and learn the components of an effective physical fitness program, with emphasis on the development of an individual fitness program and the role of exercise and fitness in one's life. In addition, students will achieve the highest standards of physical fitness in preparation for the Army Physical Fitness Test. This class is a pre-requisite for MSL 403.

MSL 212 Leadership and Teamwork 2 credits

Study examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing decisions, creativity in the problem-solving process, and obtaining team buy-in through immediate feedback.

MSL 252 The Evolution of American Warfare 3 credits

This course is designed to provide an overview of American Military history from the Revolutionary War to the present, with emphasis on the post World War I era. It examines the cause, conduct, consequences, and historical threads of military conflict.

MSL 277 Cadet Professional Development Training (CPDT) 3 credits

This course is devoted to the study and practical application of the Army profession and Army leadership development through first-hand service with real Army units on actual Army installations. Qualified cadets compete for selection to attend one of 23 separate Army courses. Note selection is very competitive and each Army-sanctioned course is very rigorous. Once selected, cadets hone their leadership and individual skills during two to four weeks of training and education. Possible courses include Airborne school, Air Assault school, Leader's Training Course, and Cadet Troop Leader Training.

Prerequisites: Limited to Cadets enrolled in Army ROTC

MSL 299 Individual Study 1-8 credits

Department chair approval required.

MSL 301 Training Management & the Warfighting Function 3 credits

Cadets will study, practice, and apply the fundamentals of Army Leadership, Officership, Army Values and Ethics, Personal Development, and small unit tactics at the platoon level. At the conclusion of this course, Cadets will be capable of planning, coordinating, navigating, motivating and leading a squad and platoon in the execution of a mission during a classroom PE, a Leadership Lab, or during a Leader Training Exercise (LTX).

MSL 302 Applied Leadership in Small Unit Operations 3 credits

Continuation of MSL 301 course.

Prerequisites: MSL 301

MSL 366 Advanced Camp 3 credits

This course is a rigorous and demanding 35-day internship held at an off-campus Army installation and is designed to develop and evaluate leadership ability and determine preparedness to become commissioned Army officers. Cadets train in physically and mentally challenging situations and undergo testing on a variety of skills and topics. Pre-req: Limited to cadets contracted with the US Army ROTC

Prerequisites: Limited to Cadets contracted with the US Army.

MSL 401 The Army Officer 3 credits

An advanced course that places primary emphasis on Officership with our MS IV cadets who are our educational main effort; MS 401 and 402 together refine and ultimately completes the Cadet-to-commissioned officer transition. In MS 401 Mission Command and ethics is stressed along to assist the Cadet in further embracing their future role as an Army officer.

Prerequisites: MSL 301, MSL 302

MSL 402 Company Grade Leadership 3 credits

The culmination of a four-year sequential, progressive, challenging developmental leadership experience. It is during this final semester that the Cadet is undergoing final preparation for the duties and responsibilities of a commissioned officer along with their integration into the Army. The emphasis is placed on critical knowledge, skills, abilities and competencies skills newly commissioned officers.

Prerequisites: MSL 301, MSL 302

MSL 403 Application of Physical Conditioning 1 credit

Students plan, organize and lead individual and team oriented physical conditioning activities. These activities are geared toward the physical development and instruction of underclassmen. MSL 403 students also administer fitness tests to underclassmen which measure the cardiovascular endurance and upper and lower body strengths. MSL 403 students are required to successfully pass the Army Physical Fitness Test prior to the end of the semester. Limited to ROTC cadets who executed an enlistment contract with the U.S. Army.

Prerequisites: MSL 210

MSL 498 Cultural Understanding and Language Proficiency Internship 3 credits

Students will develop cultural awareness and foreign language proficiency skills through a one-month summer overseas immersion experience to one of 42 different countries. Internship will expose the student to culture and will intensify language study, which helps produce commissioned officers who possess the right blend of language and cultural skills required to support global operations in the 21st Century. Internship will focus on one of three immersion opportunities: military-to-military exchange, governmental or English Instruction. (MUST ME A REGISTERED ROTC CADET TO PARTICIPATE)
Diverse Cultures: Gold

MSL 499 Individual Study 1-8 credits
Department chair approval required. Limited to ROTC cadets who executed an enlistment contract with the U.S. Army.

Museum Studies

MUSE 200W Introduction to Museum Studies 4 credits
Introduces history of museums and philosophical nature of museums, covering types and definitions of museums, discusses contemporary practice in museums, and examines current issues in the profession as we face the future of museums in the twenty-first century.

MUSE 486 Workshop 1-6 credits
A brief, intensive or hands on experience based in museum best practices, theories, and methods. Variable topics.

MUSE 497 Internship 1-6 credits
Arranged internship allows students to have a hands-on experience applying theories and methodology from course work in the field to area of interest. Requires coordination with a faculty member.

MUSE 499 Individual Study 1-6 credits
This course allows pursuit of individual avenues of study that may not be offered in the curriculum and for advanced level pursuit of special projects of research on an independent basis. Requires coordination with a faculty member.

Music General

MUSC 100 Concert Attendance 0 credits
Required for all music majors each semester in residence. May be repeated. P/N only.

MUSC 101 Introduction to Music 3 credits
A general course in music appreciation. This course includes a study of styles at different periods, musical forms, and information about composers with emphasis on the elements of music and how these elements have evolved through history.

MUSC 102 Pop Music USA: Jazz to Country to Blues 3 credits
Popular music is a multi-billion dollar industry today. What is it, and where did it come from? Learn about the origins of jazz in the music of African-Americans, its growth from Dixieland through the Big Band era (with the contributions of performers like Louis Armstrong and Duke Ellington) to its influences on musical styles in the present day. Diverse Cultures: Purple

MUSC 103 Pop Music USA: R & B to MTV 3 credits
Rock music has fans in every country and in every culture. It really is a "universal" language, but it didn't start that way. It began as black Rhythm and Blues in the 40's, and through to the present, minority groups have had a major influence on the music. Diverse Cultures: Purple

MUSC 105 Introduction to Music Education 3 credits
This course is a survey of music education in the United States, and it will introduce the field of music education to prospective music teachers. Students will explore the development of music in schools, skills needed for successful careers in education, as well as trends and issues in the field.

MUSC 110 Fundamentals of Music 3 credits
Notation, basic keyboard skills.

MUSC 111 Music Theory 1 2 credits
Part I of a four semester sequence in Music Theory focusing on written music notation skills including scales, tonality, key modes, intervals, transposition, chords, cadences, non-harmonic tones and melodic organization.

MUSC 112 Music Theory 2 2 credits
Part II of a four-semester sequence in Music Theory focusing on written music notation skills including scales, tonality, key, modes, intervals, transposition, chords, cadences, non-harmonic tones and melodic organization.

Prerequisites: MUS 131

MUSC 115 Musicianship 1 for BA/BSME 4 credits
Part 1 of a three-course sequence focusing on music theory, sight-singing, ear training, and piano skills.

MUSC 116 Musicianship 2 for BA/BSME 4 credits
Part 2 of a three-course sequence focusing on music theory, sight-singing, ear training, and piano skills.

MUSC 117 Musicianship 3 for BA/BSME 4 credits
Part 3 of a three-course sequence focusing on music theory, sight-singing, ear training, and piano skills.

MUSC 119 Class Piano I 3 credits
Class instruction in keyboard. No experience with the keyboard is required. Functional skills, including technique, scales and chord progressions, solo playing, and ensemble playing are all incorporated. Assignments are made based upon the student's major and interests. Permission of Instructor required.

MUSC 120 Music Money and Success 3 credits
A survey of commercially successful popular music from roughly 1900 to the present--what was the music? Who were the artists? When was it first heard, and what were the factors that contributed to its success?

MUSC 122 Introduction to the Music Industry 3 credits
This course is designed to provide an introduction of the organizational structures and current practices of the modern music industry with historical perspective for the music business and recording technology student.

MUSC 128 Artistic Enterprise- College, Careers, and Creativity 3 credits
This course will explore the importance of creative expression within one's own personal journey. Through interviews, personal assessments, and class-led exploration of today's job market, we'll discuss how important an "artistic attitude" can be for modern business and each student's personal success.

MUSC 190 Seminar in Music Careers	1 credit	MUSC 247 Guitar Pedagogy and Techniques	1 credit
This course will provide an overview of various music careers and will examine the attitudes and behaviors of successful professional musicians.		The basics of establishing and maintaining a guitar ensemble or program in a school situation.	
MUSC 191 Seminar in Music Industry Careers	1 credit	MUSC 248 Woodwind Pedagogy and Techniques	1 credit
The Seminar in Music Careers is a broad overview of the exciting opportunities available to graduates interested in pursuing various careers within the music space. Sectors discussed will include the record industry, publishing and licensing, live entertainment, hospitality, education, non-profit organizations, and more. Class discussions will focus on balancing the types of jobs available while working with students to understand how to match their interests and abilities to appropriate opportunities. Additionally, students will also develop their own professional digital profiles to prepare for various career paths. Personal websites, social-media, and profiles on major job-sharing platforms like LinkedIn will be utilized.		Instrumental music education majors only. Emphasis on pedagogical methods and techniques of individual instruments.	
MUSC 199 Admission to Major Interview	0 credits	MUSC 249 Percussion Pedagogy and Techniques	1 credit
Interview for admission to the music major. See your advisor for details. Grading Method		Instrumental music education majors only. Emphasis on pedagogical methods and techniques of individual instruments.	
MUSC 209 Music Travel Tour	1-3 credits	MUSC 255 Marching Band Techniques	2 credits
Prepare for, and participate in, a musical tour. Destinations will vary with each offering, and may include international experiences. Prior to travel, class sessions will deal with the music and culture of the destination. There will be additional travel expenses associated with the class. This class may be repeated for credit.		A study of techniques, styles and trends with an emphasis on show design (music arranging, drill writing, and administration) as it relates to the contemporary marching ensemble. A combination of lecture and laboratory instruction will be utilized. Prereq: Consent of instructor.	
MUSC 211 Music Theory 3	2 credits	MUSC 261 Introduction to Conducting	2 credits
Part III of a four-semester sequence in Music Theory focusing on written music notation skills.		This course is a prerequisite for Choral Musicianship (MUS 401/ MUS 402) and Instrumental Musicianship (MUS 411/MUS 412). The course will develop basic conducting technique, acquaint the student with appropriate terminology, develop interpretive skills and gesture vocabulary.	
MUSC 212 Music Theory 4	2 credits	MUSC 299 Upper-Level Admission Assessment	0 credits
Part IV of a four-semester sequence in Music Theory focusing on written music notation skills.		Prior to admission to 300- and 400-level classes, students are assessed by a cohort of music faculty. The assessment includes a review of academic progress, and a presentation or performance before the music faculty. For more information, please see your academic advisor.	
MUSC 215 Musicianship 3	1-2 credits	MUSC 301W Music History 1	3 credits
Part III of the four-semester sequence focusing on sight-singing and ear training.		This writing-intensive course focuses on the repertory of Western Music from prehistory through 1800. It examines the ways that culture and patronage impacted music developments, and focuses on techniques appropriate to research, including finding, evaluating, and using sources.	
MUSC 216 Musicianship 4	1-2 credits	Prerequisites: ENG 101, MUSC 131	
Part IV of the four-semester sequence focusing on sight-singing and ear training.		MUSC 302W Music History 2	3 credits
MUSC 217 Jazz Pedagogy and Improvisation	1 credit	This writing-intensive course focuses on the repertory of Western Music from 1800 to the present. It examines the ways that culture and patronage impacted music developments, and focuses on techniques appropriate to research, including finding, evaluating, and using sources.	
Introduction to the basic concepts of jazz pedagogy/theory and improvisation used in teaching and playing jazz and contemporary music. Fall, Spring		Prerequisites: ENG 101, MUS 131	
MUSC 219 Class Piano 2	1 credit	MUSC 303 Music Styles for the Music Educator I	3 credits
A continuation of MUSC 119 Class Piano 1. Mastery of skills (technique, scales and chord progressions, solo playing, and ensemble playing) are demonstrated over the semester.		Musical styles of western culture prior to 1800. There is a particular focus on developing the skills for teaching the content in K-12 teaching.	
Prerequisites: MUSC 119		Prerequisites: MUS 231, MUS 232, ENG 101	
MUSC 220 Piano Proficiency	0 credits	MUSC 304 Music Styles after 1800 for the Music Educator	3 credits
This assessment will determine basic proficiency in playing functional and classical piano.		Musical styles of western culture after 1800. There is a particular focus on developing the skills for teaching the content in K-12 teaching.	
MUSC 240 Music Technology	2 credits	Prerequisites: MUS 231, MUS 232, ENG 101	
Technology applications for the K-12 music educator.		MUSC 305 Instrumental Pedagogy	3 credits
MUSC 245 Brass Pedagogy and Techniques	1 credit	This course is part of the instrumental music education degree program. It focuses on the pedagogy of teaching individual or groups of instruments.	
Instrumental music education majors only. Emphasis on pedagogical methods and techniques of individual instruments.		MUSC 307 Music of the World	3 credits
MUSC 246 String Pedagogy and Techniques	1 credit	Explore the musics of the world and the cultures that they came from. Participation in off-campus musical events (concert/celebration/festival) required. Diverse Cultures: Gold	
Instrumental music education majors only. Emphasis on pedagogical methods and techniques of individual instruments.			

MUSC 308 Women in Music	3 credits	MUSC 343 General Music Lab	3 credits
This course explores the role of women composers, performers, educators and administrators in Western art music. Diverse Cultures: Purple		This pedagogical ensemble is part of the music education sequence, and this course allows students to focus on the skills needed for successful teaching in school music settings.	
MUSC 309W Music Travel Tour	3 credits	MUSC 353 Diction for Singers	2 credits
Prepare for, and participate in, a musical tour. Destinations will vary with each offering, and may include international experiences. Prior to travel, class sessions will deal with the music and culture of the destination. There will be additional travel expenses associated with the class.		Applying the International Phonetic Alphabet to song texts in English, French, Italian, Spanish and German.	
Prerequisites: ENG 101		MUSC 402 Music of the Renaissance	3 credits
		An intensive examination of the music of Western Civilization from 1450-1600.	
MUSC 315 Instrumental Methods 1	3 credits	MUSC 403 Music of the Baroque Era	3 credits
Part 1 of a three-course sequence in instrumental music education methods.		An intensive investigation of the music written from 1600-1750.	
MUSC 316 Choral Methods 1	3 credits	MUSC 404 Music of the Classic Period	3 credits
Part 1 of a three-course sequence in choral music education methods.		Music of the age of Haydn, Mozart, and Beethoven.	
MUSC 317 Instrumental Lab Ensemble	3 credits	MUSC 405 Music of the 19th Century	3 credits
This pedagogical ensemble is part of the music education sequence, and this course allows students to focus on the skills needed for successful conducting in school music settings.		An intensive study of Romanticism in music.	
MUSC 318 Choral Lab Ensemble	3 credits	MUSC 406 Music of the Modern Era	3 credits
This pedagogical ensemble is part of the music education sequence, and this course allows students to focus on the skills needed for successful conducting in school music settings.		Music since 1900.	
MUSC 320W Musicpreneurship	3 credits	MUSC 411 Form and Analysis	3 credits
In this course music majors will learn how to market themselves, create their own brand and lay the groundwork for their post-college careers. The course will cover the basics of self-assessment, bio writing, resume building, networking, self-promotion, professional communications and presentations, e-portfolios, social media and other strategies used by professional musicians.		Significant musical forms, past and present.	
MUSC 329 Seminar in Music Industry Careers	1-4 credits	MUSC 412 Composition	1-3 credits
The Seminar in Music Careers is a broad overview of the exciting opportunities available to graduates interested in pursuing various careers within the music space. Sectors discussed will include the record industry, publishing and licensing, live entertainment, hospitality, education, non-profit organizations, and more. Class discussions will focus on balancing the types of jobs available while working with students to understand how to match their interests and abilities to appropriate opportunities. Additionally, students will also develop their own professional digital profiles to prepare for various career paths. Personal websites, social-media, and profiles on major job-sharing platforms like LinkedIn will be utilized.		An independent study in compositional techniques.	
MUSC 331 Electronic Orchestration	3 credits	Prerequisites: Consent	
Electronic Orchestration is a course that explores electronic sound design, synthesis, and production techniques.			
MUSC 340 Materials and Methods of Teaching Music	2 credits	MUSC 414 Arranging (instrumentation/orchestration)	3 credits
Kindergarten and elementary grades. For elementary education majors only.		Writing techniques for instrumental groups of various types.	
MUSC 341 General Music K-12	3 credits	MUSC 415 Choral Arranging	2 credits
Required of all music education majors. Techniques and methods leading to licensure to teach General Music K-12. Music majors only.		Arranging music for choral ensembles.	
MUSC 342 General Music 6-12	2 credits	MUSC 416 Contrapuntal Techniques	3 credits
Required of all music education majors. Techniques and methods leading to licensure to teach General Music in grades 6-12. Music majors only.		Writing and analyzing 2-part, 3-part, and 4-part counterpoint.	
		MUSC 421 Project Development in the Music Industry	3 credits
		Class and/or individual projects for music industry majors only.	
		MUSC 430 Music Industry Composition Seminar	1 credit
		Music Industry Composition Seminar is a composition class for advanced music industry and composition students. Topics include artistic critiques, song form analysis, and production topics.	
		MUSC 431 Film Scoring and Multimedia	3 credits
		Film Scoring and Multimedia is a course that examines historical trends in film scoring, from orchestral scores to electronic scoring. Students will be able to work with both audio and visual components, developing their own visual material, and create short electronic film scores using common electronic synthesis techniques.	
		Prerequisites: MUSC 111, MUSC 112	
		MUSC 451 Vocal Literature	2 credits
		A survey of solo and small ensemble vocal literature through classical art song, musical theater and contemporary styles.	
		MUSC 452 Vocal Pedagogy and Literature	3 credits
		Principles of applied voice instruction and application of healthy vocal techniques.	
		MUSC 455 Piano Pedagogy	1 credit
		Technical problems in relationship to different styles.	
		MUSC 456 Piano Literature	3 credits
		A survey of literature for the keyboard from the early baroque to the present.	

MUSC 465 Choral Methods 2 Part 2 of a three-course sequence in instrumental music education methods.	3 credits	MUSP 126 Contemporary Instrumental Ensemble Audition required.	0-1 credits
MUSC 466 Choral Methods 3 Part 3 of a three-course sequence in choral music methods.	3 credits	MUSP 131 Maverick Machine Athletic Band Audition required.	0-1 credits
MUSC 471 Instrument Literature & Pedagogy Topics to be discussed are methods, literature, and teaching techniques for specific wind, percussion, and stringed instruments.	2 credits	MUSP 133 Percussion Ensemble Audition required.	0-1 credits
MUSC 475 Instrument Methods 2 The second of a three-semester sequence focusing on conducting and administering school instrumental programs.	3 credits	MUSP 135 Theatre Orchestra Audition required.	0-1 credits
MUSC 476 Instrumental Methods 3 Part 3 of a three-course sequence in instrumental music education methods.	3 credits	MUSP 139 Instrumental Ensemble Audition required.	0-1 credits
MUSC 482 In-Service MUSC 485 Selected Topics Selected Topics.	1 credit 1-4 credits	MUSP 150 Studio Class Master class where students perform for each other, and are critiqued by other students and faculty. Presentations may also be made on performance issues. Required each semester that a student is taking lessons.	0 credits
MUSC 489 Workshop MUSC 498 Internship Demonstrate mastery of musicianship skills through performance, conducting, arranging, collaboration and/or other creative activities, considering multiple musical genres. Demonstration of an awareness of social/historical context of music through a written/an or oral presentation. Demonstrate entrepreneurial skills.	1-4 credits 1-16 credits	MUSP 151 Private Voice 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits
MUSC 499 Independent Study	1-4 credits	MUSP 152 Introduction to Vocal Studies Introducing fundamental healthy vocal technique, practice techniques, performance practices, collaborative musicianship, stage deportment, basic solfege, and elements of critical listening. Learning skills that are applied to private study for all music majors and minors. May be repeated.	1 credit

Music Performance

MUSP 101 (0-1) Concert Choir Audition required.	0-1 credits	MUSP 154 Private Study Jazz Private instruction in jazz. This instruction would be individualized to the areas of focus of individual students (i.e., jazz improvisation, jazz theory, jazz arranging).	1 credit
MUSP 102 University Chorale No audition required.	0-1 credits	MUSP 155 Private Piano 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 103 Chamber Singers A select group of approximately 20 singers who perform works for small ensemble. The group tours regularly in the state and in the region. Prereq: audition required	0-1 credits	MUSP 156 Private Harpsichord 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 108 Contemporary Vocal Ensemble Audition required.	0-1 credits	MUSP 157 Private Organ 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 111 Music Productions for the Stage and Screen Audition required.	0,1 credits	MUSP 161 Private Trumpet 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 114 (1.00) Vocal Ensemble Audition required.	1 credit	MUSP 162 Private Horn 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 121 Wind Ensemble A select group of wind and percussion players. Open to all students who play a band instrument. Concerts on and off campus. Prereq: audition required	0-1 credits	MUSP 163 Private Trombone 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 122 Symphonic Band No audition required.	0-1 credits	MUSP 164 Private Euphonium 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 123 University Orchestra Audition required.	0-1 credits		
MUSP 125 Jazz Ensemble Audition required.	0-1 credits		

MUSP 165 Private Tuba 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 186 Private Percussion 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 171 Private Violin 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 190 Private Secondary Instrument Private lessons on a secondary instrument. This course is designed for music teachers who wish to gain basic proficiency on instruments other than their primary instrument of study.	1 credit
MUSP 172 Private Viola 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 191 Private Instrument 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits
MUSP 173 Private Cello 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 201 Concert Choir Audition required.	0-1 credits
MUSP 174 Private Double Bass 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 202 University Chorale Audition required.	0-1 credits
MUSP 176 Private Classical Guitar 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 203 Chamber Singers Audition required.	0-1 credits
MUSP 177 Group Instruction in Guitar Learn to play acoustic guitar. Instruments may be available.	3 credits	MUSP 208 Contemporary Vocal Ensemble Audition required.	0-1 credits
MUSP 178 Private Electric Guitar 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 211 Music Productions for the Stage and Screen Audition required.	0-1 credits
MUSP 179 Private Electric Bass 1 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 214 Vocal Ensemble Audition required.	0-1 credits
MUSP 181 Private Flute 1 Audition required. May be repeated. Prerequisites: Permission of instructor	1, 3 credits	MUSP 215 Collaborative Piano Experience in accompanying. Advanced pianists may participate in chamber ensembles. May be repeated.	1 credit
MUSP 182 Private Oboe 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 221 Wind Ensemble Audition required.	0-1 credits
MUSP 183 Private Clarinet 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 222 Symphonic Band No audition required.	0-1 credits
MUSP 184 Private Saxophone 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 223 University Orchestra Audition required.	0-1 credits
MUSP 185 Private Bassoon 1 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 225 Jazz Mavericks Audition required.	0-1 credits
		MUSP 226 Contemporary Instrumental Ensemble Audition required.	0-1 credits
		MUSP 233 Percussion Ensemble Audition required.	0-1 credits
		MUSP 235 Theatre Orchestra Audition required.	0-1 credits
		MUSP 239 Instrumental Ensemble Audition required.	0-1 credits
		MUSP 251 Private Voice 2 Audition required.	1, 3 credits
		MUSP 255 Private Piano 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits
		MUSP 256 Private Harpsichord 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits

MUSP 257 Private Organ 2 Audition required. May be repeated. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 283 Private Clarinet 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 261 Private Trumpet 2 Audition required. May be repeated.	1, 3 credits	MUSP 284 Private Saxophone 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 262 Private Horn 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 285 Private Bassoon 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 263 Private Trombone 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 286 Private Percussion 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 264 Private Euphonium 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 291 Private Instrument 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 265 Private Tuba 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 299 Sophomore Recital/Project Audition required. Prerequisites: Permission of instructor	0 credits
MUSP 271 Private Violin 2 Audition required.	1, 3 credits	MUSP 301 Concert Choir Audition required. Prerequisites: MUS 299	0-1 credits
MUSP 272 Private Viola 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 302 University Chorale No audition required. Prerequisites: MUS 299. Permission	0-1 credits
MUSP 273 Private Cello 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 303 Chamber Singers Audition required.	0-1 credits
MUSP 274 Private Double Bass 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 308 Contemporary Vocal Ensemble Audition required.	0-1 credits
MUSP 276 Private Classical Guitar 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 311 Music Productions for the Stage and Screen Audition required	0-1 credits
MUSP 278 Private Electric Guitar 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 314 Vocal Ensemble Audition required.	0-1 credits
MUSP 279 Private Electric Bass 2 Audition required. Prerequisites: Permission of Instructor	1, 3 credits	MUSP 315 Collaborative Piano Experience in accompanying. Advanced pianists may participate in chamber ensembles. May be repeated.	1 credit
MUSP 281 Private Flute 2 Audition required.	1, 3 credits	MUSP 316 Accompanying for Choral Music Education Majors Directing and accompanying large vocal ensembles from the keyboard. Prerequisites: Permission of instructor	3 credits
MUSP 282 Private Oboe 2 Audition required. Prerequisites: Permission of instructor	1, 3 credits	MUSP 317 Small Vocal Ensemble and Solo Accompanying Working collaboratively with smaller vocal ensembles and vocal soloists at the keyboard in different styles and genres. Prerequisites: Permission of instructor	1 credit
		MUSP 321 Wind Ensemble Audition required.	0-1 credits

MUSP 322 Symphonic Band No audition required.	0-1 credits	MUSP 364 Private Euphonium 3 Audition required.	1, 3 credits
MUSP 323 University Orchestra Audition required.	0-1 credits	Prerequisites: Permission of Instructor	
MUSP 325 Jazz Ensemble Audition required.	0-1 credits	MUSP 365 Private Tuba 3 Audition required.	1, 3 credits
MUSP 326 Contemporary Instrumental Ensemble Audition required.	0-1 credits	Prerequisites: Permission of Instructor	
MUSP 331 Maverick Machine Athletic Band Audition required.	0-1 credits	MUSP 371 Private Violin 3 Audition required.	1, 3 credits
MUSP 333 Percussion Ensemble Audition required.	0-1 credits	Prerequisites: Permission of instructor	
MUSP 335 Theatre Orchestra Audition required.	1 credit	MUSP 372 Private Viola 3 Audition required.	1, 3 credits
MUSP 339 Instrumental Ensemble Audition required	0-1 credits	Prerequisites: Permission of instructor	
MUSP 351 Private Voice 3 Audition required.	1, 3 credits	MUSP 373 Private Cello 3 Audition required.	1, 3 credits
Prerequisites: Permission of Instructor		Prerequisites: Permission of instructor	
MUSP 355 Private Piano 3 Audition required.	1, 3 credits	MUSP 374 Private Double Bass 3 Audition required.	1, 3 credits
Prerequisites: Permission of Instructor required.		Prerequisites: Permission of instructor	
MUSP 356 Private Harpsichord 3 Audition required.	1, 3 credits	MUSP 376 Private Classical Guitar 3 Audition required.	1, 3 credits
Prerequisites: Permission of Instructor required.		Prerequisites: Permission of instructor	
MUSP 357 Private Organ 3 Initial preparations for capstone experience through performances and possible junior recital; Advanced techniques in pedagogy; Collaborative and independent musicianship developed; Introduction to entrepreneurial skills; Service or in-service activities. May be repeated.	1, 3 credits	MUSP 378 Private Electric Guitar 3 Audition required.	1, 3 credits
Prerequisites: Permission of Instructor required.		Prerequisites: Permission of instructor	
MUSP 358 Private Contemporary Commercial Voice 3 Build upon the principles of vocal production as they apply to singing songs from contemporary commercial genres; including popular songs, jazz, gospel, musical theatre, contemporary worship, and track singing. Emphasis is placed on posture, breathing, resonance, style, microphone technique, movement, program development, and presentation. Literature appropriate for each voice range and ability is studied. Audition required.	1, 3 credits	MUSP 379 Private Electric Bass 3 Audition required.	1, 3 credits
MUSP 361 Private Trumpet 3 Audition required.	1, 3 credits	Prerequisites: Permission of instructor	
Prerequisites: Permission of Instructor		MUSP 381 Private Flute 3 Audition required.	1, 3 credits
MUSP 362 Private Horn 3 Audition required.	1, 3 credits	Prerequisites: Upper-Level Jury, and consent, permission of instructor.	
Prerequisites: Permission of Instructor		MUSP 382 Private Oboe 3 Audition required.	1, 3 credits
MUSP 363 Private Trombone 3 Audition required. May be repeated.	1, 3 credits	Prerequisites: Permission of Instructor.	
Prerequisites: Permission of Instructor		MUSP 383 Private Clarinet 3 Audition required.	1, 3 credits
		Prerequisites: Permission of Instructor.	
		MUSP 384 Private Saxophone 3 Audition required.	1, 3 credits
		Prerequisites: Permission of Instructor.	
		MUSP 385 Private Bassoon 3 Audition required.	1, 3 credits
		Prerequisites: Permission of Instructor.	

MUSP 386 Private Percussion 3 Audition required. Prerequisites: Permission of Instructor.	1, 3 credits	MUSP 439 Instrumental Ensemble Audition required. Prerequisites: Permission of instructor	0-1 credits
MUSP 391 Private Instrument 3 Audition required. Prerequisites: Permission of Instructor required.	1, 3 credits	MUSP 451 Private Voice 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 399 Junior Recital MUSP 401 Concert Choir Audition required. Prerequisites: Permission of Instructor.	0-1 credits 0-1 credits	MUSP 455 Private Piano 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 402 University Chorale No audition required.	1 credit	MUSP 456 Private Harpsichord 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 403 Chamber Singers Audition required. Prerequisites: Permission of Instructor.	0-1 credits	MUSP 457 Private Organ 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 408 Contemporary Vocal Ensemble Audition required.	0-1 credits	MUSP 458 Private Contemporary Commercial Voice 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 411 Music Productions for the Stage and Screen Audition required.	0-1 credits	MUSP 461 Private Trumpet 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 414 Vocal Ensemble Audition required. Prerequisites: Permission of instructor	0-1 credits	MUSP 462 Private Horn 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 421 Wind Ensemble Audition required. Prerequisites: Permission of instructor	0-1 credits	MUSP 463 Private Trombone 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 422 Symphonic Band No audition required.	0-1 credits	MUSP 464 Private Euphonium 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 423 University Orchestra Audition required. Prerequisites: Permission of instructor	0-1 credits	MUSP 465 Private Tuba 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 425 Jazz Mavericks Audition required. Prerequisites: Permission of instructor	1 credit	MUSP 471 Private Violin 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 426 Contemporary Instrumental Ensemble Audition required. Prerequisites: Permission of instructor	0-1 credits	MUSP 472 Private Viola 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 433 Percussion Ensemble Audition required. Prerequisites: Permission of instructor	0-1 credits	MUSP 473 Private Cello 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 435 Theatre Orchestra Audition required. Prerequisites: Permission of instructor	0-1 credits		

MUSP 474 Private Double Bass 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 476 Private Classical Guitar 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 478 Private Electric Guitar 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 479 Private Electric Bass 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 481 Private Flute 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 482 Private Oboe 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 483 Private Clarinet 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 484 Private Saxophone 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 485 Private Bassoon 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 486 Private Percussion 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 491 Private Instrument 4 Audition required. Prerequisites: Permission of instructor	1, 3 credits
MUSP 493 Advanced Choral Conducting Continuing development of choral conducting and analysis skills. Prerequisites: Permission of Instructor	3 credits
MUSP 497 Advanced Instrumental Conducting Conducting skills for the advanced instrumental conductor.	3 credits
MUSP 498 Senior Capstone Project or Recital Demonstrate mastery of musicianship skills through performance, conducting, arranging, collaboration and/or other creative activities, considering multiple musical genres. Demonstration of an awareness of social/historical context of music through a written/an or oral presentation. Demonstrate entrepreneurial skills.	0-1 credits

Nonprofit Leadership

NPL 273 Introduction to the Nonprofit Sector Designed as an introduction to the nonprofit sector, this course provides the foundation for students working toward a certificate in Nonprofit Leadership. This workshop addresses the historical and philosophical foundations in nonprofit leadership as well as exploring key leadership issues.	3 credits
NPL 460 Administering Cultural Organizations Theoretical and practical aspects of administering arts organizations. Examines the management, budgeting, marketing, and administration of cultural organizations in the postmodern era.	3 credits
NPL 473 Advanced Workshop in Nonprofit Leadership Designed as the sequel to NPL 273, this course addresses managing operations, developing and managing financial services, and managing people. This course will include a service-learning component. Prerequisite: NPL 273, or by special permission.	3 credits
NPL 485 Selected Topics Topics vary as announced in class schedule. May be retaken for credit if topic varies.	1-3 credits
NPL 486 Fundraising for Nonprofits Designed as an overview to fundraising and development for nonprofit organizations, this course addresses the development of a fundraising plan and attracting donors. There will be an emphasis on organizational outreach using both traditional and new media.	3 credits
NPL 488 Financial Management for Nonprofits Designed as an overview of financial management for nonprofit organizations, this course addresses the integration of mission-driven planning and financial management with an emphasis on tax exemption, accounting systems, financial statements, budgets, and regulatory reporting.	3 credits
NPL 497 Internship: Nonprofit Leadership The internship in nonprofit leadership is designed to provide an opportunity to apply coursework, to develop key skills in the nonprofit sector, to experience professional socialization, and to inform potential career trajectories. The internship must be completed within a nonprofit organization.	3 credits

Nursing

NURS 236 Family & Societal Inquiry for Healthcare Professionals Focuses on the critical inquiry into the nursing care of family and society in the context of diverse cultures. Explores concepts related to family and society as clients, the health experience, and nursing strategies to foster family and societal care.	3 credits
Prerequisites: ENG 101, NURS 286	

NURS 282 Pathophysiology for Healthcare Professionals 3 credits

A holistic perspective of pathophysiologic processes and their impact on body systems and overall human functioning. Focuses on the risk factors, pathophysiology and clinical manifestations of physiologic disease processes in humans. Students must have a minimum grade of a C in BIOL 201 and BIOL 202 in order to enroll in NURS 282.

Prerequisites: BIOL 201 and BIOL 202 OR BIOL 220 and BIOL 330

NURS 284 Pharmacology for Healthcare Professionals 3 credits

Focuses on the basic drug classification, concepts and principles of pharmacology with application of drug therapy. Implications relative to the utilization of drug therapy are examined. Dosage calculations are evaluated for competency. Students must have a minimum grade of a C in BIOL 220 and BIOL 330 in order to enroll in NURS 284.

Prerequisites: Minimum of a C in BIOL 220 and BIOL 330.

NURS 286 Relationship-Based Care 3 credits

Provides an introduction to the profession of nursing and explores relationship-based care in healthcare. Provides an overview of concepts related to establishing caring and healing environments, developing therapeutic and professional relationships, and the inter-relationship of care for self, team, and patient.

NURS 301 Cultural Health Immersion: Study Abroad 3 credits

This is a study abroad course that focuses on the healthcare system and health beliefs of a different culture/ country. Students will have the opportunity to interact with professionals and community members to get a better understanding of their health beliefs, care system, the role of family in health etc. Diverse Cultures: Gold

NURS 310 Professional Nursing 3 credits

Introduces concepts fundamental to professional nursing: roles of professional nurse and inter-professional team members, regulatory guidelines, standards of practice, health care organizations and economics. The nursing process with care planning and concept maps will be presented. Theoretical perspectives on professional nursing and the concept of persons, health and environment are introduced.

NURS 311 Physiologic Integrity I 4 credits

Focuses on nursing management of alterations in physiologic integrity across the lifespan that includes health promotion and prevention as well as early detection of alterations in physiological integrity. This course will assist students in the application of theory, use of the nursing process, and identification of clinical implications of US and global health issues.

NURS 312 Pharmacology for Nurses 3 credits

Focuses on the basic drug classification, concepts and principles of pharmacology with application of drug therapy. Implications relative to the utilization of drug therapy are examined. Dosage calculations are evaluated for safe use in practice and competency.

NURS 313 Assessment and Nursing Procedures 4 credits

Focuses on assessment of the healthy family and the relationship of health assessment to prevention and early detection of disease, incorporating the processes of interviewing, history-taking, and physical assessment. A laboratory component integrating nursing skills and procedures is included.

NURS 317 Nursing Simulation and Procedures I 1 credit

Focuses on development of nursing knowledge and management through use of simulated patient encounters. Students will explore concepts related to family and society to develop nursing strategies to foster family and societal care.

NURS 320W Critical Inquiry and Evidence-based Practice for RNs 4 credits

This course provides an introduction to the concepts of evidence-based practice, research, critical inquiry development and application to inform nursing practice that promotes healthcare and facilitates equitable health outcomes of individuals, families and society.

Prerequisites: RN licensure. Admission to the RN Baccalaureate Completion program.

NURS 333 Professional Nursing 3 credits

Introduces concepts fundamental to professional nursing: roles of professional nurse and interprofessional team members, regulatory guidelines, standards of practice, therapeutic communication, and cultural sensitivity. Theoretical perspectives on professional nursing and the concepts of persons, health and environment are introduced.

NURS 334 Physiologic Integrity I 4 credits

Focuses on health promotion and prevention and early detection of alterations in physiological integrity. Leading US and global health issues are discussed, along with clinical implications of those prevalent diseases.

NURS 335 Family and Societal Nursing Inquiry 3 credits

Critical inquiry into the nursing care of family and society in the context of diverse cultures. Explores concepts related to family and society as clients, the family and societal health experience, and nursing strategies to foster family and societal care.

NURS 336 Assessment and Nursing Procedures 5 credits

A focus on assessment of the healthy family and the relationship of health assessment to prevention and early detection of disease, incorporating the processes of interviewing, history-taking, and physical assessment. A laboratory component integrating nursing skills and procedures is included.

NURS 350W Critical Inquiry in Nursing 3 credits

Introduces the value of scientific inquiry, use of scholarly evidence, and significance of critical thinking/development of clinical reasoning. Examines theoretical frameworks pertaining to scientific inquiry and development of nursing knowledge through research and evidence-based practice.

Prerequisites: NURS 310, NURS 311, NURS 312, NURS 313, NURS 317

NURS 351 Physiologic Integrity II 5 credits

Focuses on nursing management of alterations in physiological integrity and meeting needs of patients with commonly occurring acute or chronic health disorders and/or injury. This course is designed to assist students in the theoretical and practical application of the nursing process to meet the healthcare needs of clients with acute or complex needs.

Prerequisites: NURS 310, NURS 311, NURS 312, NURS 313, NURS 317

NURS 353 Psychosocial Integrity 3 credits

Focuses on mental health and psychosocial concepts and the responsibility of nursing in promoting and maintaining psychosocial integrity of individuals. Application of therapeutic communication and caring relationships through evidenced based nursing actions and treatment of common clinical conditions.

Prerequisites: NURS 310, NURS 311, NURS 312, NURS 313, NURS 317

NURS 356 Nursing Care of Families I: Perinatal, Sexual and Reproductive Health **3 credits**

Focuses on the critical inquiry of the physiological and psychosocial changes occurring within families during the childbearing period. Incorporates inclusive family support strategies and parental involvement. Includes didactic and experiential learning designed to promote family-focused nursing care and improve family health outcomes.

Prerequisites: NURS 310, NURS 311, NURS 312, NURS 313, NURS 317

NURS 357 Nursing Simulation and Procedures II **2 credits**

Focuses on developing clinical judgment, decision-making, and psychosocial understanding of changes experienced by families using simulated patient encounters. Students will treat the patient and family as a unit of care.

Prerequisites: NURS 310, NURS 311, NURS 312, NURS 313, NURS 317

NURS 362 Family and Societal Nursing for RNs **4 credits**

This course investigates the concepts related to family as client, nurse-family relationships, and the family health experience by examining family literature and family research. Utilizing family nursing theory as a framework, learners will develop nursing actions and interventions for healthy families and families experiencing acute, chronic, and critical illness. Healthcare policies will be evaluated related to family and societal health to advance equitable care.

Prerequisites: Prerequisites: RN licensure. Admission to the RN Baccalaureate Completion program.

NURS 363 Critical Inquiry in Nursing **2 credits**

Introduction to fundamental theories and frameworks pertaining to scientific inquiry, development of nursing knowledge, evidence-based and informed practice, and research utilization in nursing practice.

NURS 364 Physiologic Integrity II **5 credits**

Focuses on nursing management of acute alterations in physiological integrity and meeting needs of patients with commonly occurring acute health disorders. This course is designed to assist students in the theoretical and practical application of the nursing process to meet the healthcare needs of clients with acute needs.

Prerequisites: NURS 284, NURS 330, NURS 333, NURS 334, NURS 336

NURS 365 Nursing Care of Families in Transition I **7 credits**

Focuses on the critical inquiry of the physiological and psychosocial changes occurring with families during the childbearing/childrearing transition period. Includes didactic and experiential learning designed to promote family centered nursing care and improved family health outcomes.

Prerequisites: NURS 333, NURS 334, NURS 335, NURS 336

NURS 366 Quality, Safety and Informatics in Healthcare **2 credits**

Focus on identification, implementation, and evaluation of patient/family quality and safety measures. Includes quality movement history and evolution, current quality of care issues, research and innovations, intervention strategies, and instruments; with an analysis of health care quality management system models.

NURS 382 Holistic Nursing Assessment and Practice **4 credits**

This course explores the nurse's role in providing care to individuals and families of diverse spiritual, ethnic, and cultural backgrounds across the lifespan. Learners examine cultural diversity, spirituality, marginalized populations, and the integration of complementary and alternative therapies to provide holistic care. Learners perform comprehensive health, spiritual and cultural assessments, create a plan of care, and evaluate the effects of the care plan to promote a holistic approach to nursing. Diverse Cultures: Gold

Prerequisites: RN Licensure. Admission to the RN Baccalaureate Completion Program.

Corequisites: NURS 320

NURS 398 CPT: Co-Operative Experience **0 credits**

Curricular Practical Training: Co-Operative Employment Experience for undergraduate international F-1 pre-nursing/nursing students to gain practical work experience related to the field of nursing for one summer and one adjunct fall or spring term. Special rules and eligibility criteria established by the Pre-licensure Nursing Program must be met. Please contact an advisor in your program for complete information.

NURS 401 Cultural Immersion in Nursing Practice for RNs **3 credits**

An experiential immersion into the healthcare needs of the client and family within another culture with a focus on nursing interventions to promote health. An intense induction into cultural humility will enhance awareness and promote an appreciation for global health.

NURS 402 Psychosocial/Inter-professional Communication for RNs **4 credits**

This course examines application of concepts and strategies for psychosocial and interprofessional communication to elevate professional nursing roles, responsibilities, and interactions that enhance intraprofessional and interprofessional collaboration for equitable healthcare optimization, maintenance, experiences, and outcomes for individuals, families, and society.

Corequisites: NURS 320

NURS 410 Quality, Safety and Informatics in Healthcare **3 credits**

Focuses on identification, implementation, and evaluation of patient/family quality and safety measures. Includes quality movement history and evolution, current quality of care issues, research and innovations, intervention strategies, and instruments; with an analysis of health care quality management system models.

Prerequisites: NURS 350W, NURS 351, NURS 353, NURS 356, NURS 357

NURS 411 Physiologic Integrity III **5 credits**

Focuses on nursing management of alterations in physiological integrity including patients with commonly occurring complex, multi-system health disorders. This course is designed to assist students in the theoretical and practical application of the nursing process to meet the healthcare needs of patients with chronicity of disease and rehabilitation needs.

Prerequisites: NURS 350W, NURS 351, NURS 353, NURS 356, NURS 357

NURS 413 Population Focused Care **3 credits**

Focuses on health promotion, disease prevention, determinants of health, community and systems-levels interventions, and fundamental issues of health equity. Students apply public health science, epidemiology, systems-level thinking, and policy development to support population focused nursing care.

Prerequisites: NURS 350W, NURS 351, NURS 353, NURS 356, NURS 357

NURS 416 Family Transitions in Vulnerable Populations 2 credits
Focuses on the critical inquiry of families; health and illness experiences. Examines family reserves, coping and resiliency across the lifespan and among vulnerable populations. Promotes family centered nursing care during transitions within child, adolescent, adult and older adult family transitions.

Prerequisites: NURS 350W, NURS 351, NURS 353, NURS 356, NURS 357

NURS 417 Nursing Simulation and Procedures III 1 credits
Focuses on application of clinical judgment, evidence-based practice, and family-focused care through use of simulated patient encounters. Students will incorporate knowledge of the social determinants of health as they work with health care teams.

Prerequisites: NURS 350W, NURS 351, NURS 353, NURS 356, NURS 357

NURS 420 Quality, Safety, Value and Informatics in Nursing Practice for RNs 4 credits
This course is designed to highlight and analyze the role of the nurse in the application and evaluation of national quality and safety guidelines, standards and informatics tools to create a culture of quality and safety. The course focuses on investigating solutions for the aim of preventing and reducing medical errors, and it emphasizes the value of nursing care in the healthcare system.

Prerequisites: NURS 320

NURS 426 Nursing Care of Families II: Pediatrics/Adolescent Health 3 credits
Focuses on the critical inquiry of the physiological and psychosocial changes occurring with families during the childrearing period. Includes didactic and experiential learning designed to promote family-focused nursing care of children and adolescents (ages 0-18) to help improve family health outcomes.

Prerequisites: NURS 350W, NURS 351, NURS 353, NURS 356, NURS 357

NURS 433 Community Oriented Nursing Inquiry 4 credits
Think critically about the roles and responsibilities of the community-oriented nurse in the context of disease prevention, health promotion, protection, maintenance, restoration, and surveillance of diverse populations. Examine foundational pillars of assurance, assessment and policy development to support population focused nursing care across the lifespan.

Prerequisites: NURS 363, NURS 364, NURS 365, NURS 366

NURS 434 Physiologic Integrity III 4 credits
Focuses on nursing management of chronic alterations in physiological integrity and meeting needs of patients with commonly occurring chronic health disorders. This course is designed to assist students in the theoretical and practical application of the nursing process to meet the healthcare needs of patients with chronic and rehabilitation needs.

Prerequisites: NURS 363, NURS 364, NURS 365, NURS 366

NURS 435 Nursing Care of Families in Transition II 3 credits
Focuses on the critical inquiry of families' health and illness experiences. Includes didactic and experiential learning designed to promote family centered nursing care during transitions within child, teenage, adult and older adult family transitions.

Prerequisites: NURS 363, NURS 364, NURS 365, NURS 366

NURS 436 Psychosocial Integrity 4 credits
Focuses on mental health and psychosocial concepts and the responsibility of nursing in promoting and maintaining psychosocial integrity of individuals. Application of therapeutic communication and caring relationships through evidenced based nursing actions and treatment of common clinical conditions.

Prerequisites: NURS 363, NURS 364, NURS 365, NURS 366, PSYC 101

NURS 444 Healthcare Innovation and Entrepreneurship 4 credits
This course provides an overview of the innovative and entrepreneurial process within healthcare environments. Students conceptualize and develop a workflow or process improvement plan that includes understanding the current state, identifying innovative solutions, forecasting financial and human resource needs, analyzing potential organizational outcomes, and designing an implementation and evaluation strategy.

Prerequisites: NURS 286

NURS 445 Legal and Ethical Issues in Health Informatics 4 credits
This course provides an overview of legal and ethical issues within health informatics as related to accreditation requirements, licensure and regulatory agencies, payment and reimbursement, management and use of data, information, knowledge, and the technology used to communicate.

Prerequisites: NURS 286

NURS 450 Nursing Leadership & Management 3 credits
Focuses on nursing leadership and management skills, organizational structure, care processes; health policy and regulatory processes, quality improvement; and patient/family and consumer advocacy.

Prerequisites: NURS 410, NURS 411, NURS 413, NURS 416, NURS 417, NURS 426

NURS 451 Physiologic Integrity IV 4 credits
Focuses on nursing management of complex or critical multi-system alterations in physiologic integrity. This course is designed to assist students in the theoretical and practical application of the nursing process to meet the healthcare needs of patients with complex, multi-system disorder and critical care needs.

Prerequisites: NURS 410, NURS 411, NURS 413, NURS 416, NURS 417, NURS 426

NURS 456 Societal and Global Health: Implications for Families in Crisis 2 credits
Focuses on the critical inquiry of family, societal, and global health. Expands health understandings and ethical care in addressing emerging global health crises throughout the lifespan.

Prerequisites: NURS 410, NURS 411, NURS 413, NURS 416, NURS 417, NURS 426

NURS 457 Nursing Simulation and Procedures IV 1 credit
Focuses on knowledge synthesis and management of patients and families with multi-system alternations in physiologic integrity through use of simulated patient encounters. Students will collaborate with interprofessional teams when providing care and evaluating patients from diverse backgrounds.

Prerequisites: NURS 410, NURS 411, NURS 413, NURS 416, NURS 417, NURS 426

NURS 458 Professional Role Integration **3 credits**
Focuses on experiential learning that integrates nursing science in preparing graduates for baccalaureate-generalist nursing practice. Family nursing science is evident in the coordination and provision of care.

Prerequisites: NURS 450, NURS 451

NURS 463 Nursing Leadership and Management **3 credits**
Focuses on nursing leadership and management skills, organizational structure, care processes; health policy and regulatory processes, quality improvement; and patient/family and consumer advocacy.

Prerequisites: NURS 433, NURS 434, NURS 435, NURS 436

NURS 464 Physiologic Integrity IV **4 credits**
Focuses on nursing management of complex, multi-system alterations in physiologic integrity. This course is designed to assist students in the theoretical and practical application of the nursing process to meet the healthcare needs of patients with complex, multi-system disorder needs.

Prerequisites: NURS 433, NURS 434, NURS 435, NURS 436

NURS 465 Nursing Care of Families in Crisis **2 credits**
An examination of family dynamics and the nursing role focused on advanced family therapeutic communication, facilitation or family care meetings to make informed health care decisions. Examines system issues concerning health care delivery to decision maker within healthcare organizations.

Prerequisites: NURS 433, NURS 434, NURS 435, NURS 436

NURS 466 Professional Role Integration **4 credits**
Focuses on experiential learning that integrates nursing science in preparing graduates for baccalaureate-generalist nursing practice. Family nursing science is evident in the coordination and provision of care.

Prerequisites: NURS 463, NURS 464

NURS 482W Population-Based Public Health Practice for RNs **6 credits**
This course takes an upstream approach to population-based public health care, focusing on health promotion, disease prevention, determinants of health, and fundamental issues of health equity at individual, family, community, and system levels of practice. Learners apply public health science, principles of epidemiology, community assessment skills, systems-level thinking, and policy development to support population-based nursing practice.

Prerequisites: NURS 320, NURS 382. RN Licensure. Admission to the RN Baccalaureate Completion program.

NURS 490 Workshop **1-3 credits**
Workshop(s) with various topics and titles.

NURS 491 In-Service **1-5 credits**
Workshop(s) with various topics and titles.

NURS 492 Nursing Capstone and Leadership for Baccalaureate Practice **4 credits**
This capstone course synthesizes the underpinnings of Baccalaureate nursing education. Learners will analyze achievement of program outcomes through reflective journaling and be evaluated on the attainment of these outcomes. Learners explore leadership and management principles necessary for the professional nurse to function effectively in a changing health care system through theoretical and experiential learning. Learners plan an evidence-based capstone project that is designed to improve processes and/or enhance health outcomes while re-envisioning the professional nurse's role and personal power to influence positive change. Must be taken the last semester of the program as a final course, may be taken with other 400 level course(s).

Prerequisites: RN Licensure; NURS 320, NURS 362, NURS 382. RN Licensure. Admission to the RN Baccalaureate Completion program.

Corequisites: NURS 402, NURS 420, NURS 482

NURS 495 An Interprofessional Approach to Integrative and Holistic Healthcare **4 credits**
This interprofessional course provides the opportunity for learners to synthesize knowledge, application and critical evaluation of integrative practices in providing holistic healthcare to individuals and families. The course focuses on theoretical, cultural, financial, historical, and ethical foundations. Safety, efficacy and the evidence base of integrative practices are explored. Interdisciplinary collaboration in providing integrative practices for holistic healthcare is emphasized.

NURS 497 Internship **1 credits**
This course provides clinical based learning opportunities to encourage application of theory and research bases knowledge in clinical practice. Students will engage in experiences to enhance the development of their professional nursing role.

NURS 499 Individual Study **1-5 credits**
Individual study according to outcomes developed by faculty and student(s).

Philosophy

PHIL 100W Introduction to Philosophy **3 credits**
Introduction to the nature of philosophy and specific, basic problems.

PHIL 101W Philosophical Problem: The Mind-Body Problem **3 credits**
This course considers historical and contemporary analyses of the mind in relation to the body and the connection of the mind-body problem to other issues concerning both religion and science.

PHIL 110 Logic and Critical Thinking **3 credits**
Traditional syllogistic logic and an introduction to the elements of modern symbolic logic.

PHIL 112W Scientific Reasoning **3 credits**
This course explores what makes reasoning scientific as distinguished from non-scientific. Issues are inductive reasoning, causal reasoning, fallacies, hypothetico-deductive reasoning, falsifiability, and scientific knowledge.

PHIL 115W Philosophy of Race, Class and Gender **3 credits**
To what extent do the differences among races and between genders represent biological differences, and to what extent are they constructed by society? Is racism best conceptualized as an additional burden to sexism or as one different in kind?

PHIL 120W Introduction to Ethics	3 credits	PHIL 358W Topics in Asian Philosophy	3 credits
Discussion of theories of value and obligation.		Critical discussion of the topics chosen from the Asian philosophical traditions of Hinduism, Buddhism, Confucianism, and Daoism. Diverse Cultures: Purple	
PHIL 122W Introduction to Asian Philosophy	3 credits	PHIL 361 Philosophy of Religion	3 credits
Survey of Asian philosophical traditions of Hinduism, Jainism, Buddhism, Confucianism, and Daoism. Diverse Cultures: Purple		Structure and logic of religious belief. Problems such as the existence of God, evil, immortality, miracles, and religious language.	
PHIL 205W Culture, Identity, and Diversity	3 credits	PHIL 400 The Philosophy of Immanuel Kant	3 credits
Discussion of the ways that a culture both creates human community and shapes self-identity. Exploration of similarities and differences between and interdependence among cultural traditions, and of vocabularies for assessing traditions.		This course will undertake a close reading and study of Immanuel Kant's Critique of Pure Reason and other texts.	
PHIL 222W Medical Ethics	3 credits	PHIL 405 The Philosophy of Ludwig Wittgenstein	3 credits
Ethical perspectives relevant to issues such as euthanasia, genetic engineering, organ transplant, patients' rights, abortion, etc.		A study of the philosophy of Ludwig Wittgenstein.	
PHIL 224 Business Ethics	3 credits	PHIL 410 Philosophy of Language	3 credits
Introduction to ethical theories and concepts and their application to specific cases in the world of business. V		Theories of meaning, speech acts and semantics, relation of language to the world.	
PHIL 224W Business Ethics	3 credits	PHIL 420 Epistemology	3 credits
Introduction to ethical theories and concepts and their application to specific cases in the world of business.		Theories of knowledge and justification, skeptical attacks on the possibility of knowledge, and anti-skeptical defenses.	
PHIL 226W Environmental Ethics	3 credits	PHIL 430 Metaphysics	3 credits
Questions about human responsibilities to other animals and the environment gain urgency as environmental crises become more prevalent, and animal species continue to be eliminated. Learn about, critique, and apply the principles underlying evaluations of human environmental conduct.		An investigation of the most fundamental concepts of reality, including the nature of things, identity over time, modality, causation, free will, space and time, and universals and particulars.	
PHIL 240W Law, Justice & Society	3 credits	PHIL 437 Contemporary Philosophy	3 credits
Consideration of the basic philosophical approaches to the idea of justice and how this idea relates to other fundamental ideas in political philosophy, ethics, and law.		Major philosophers and philosophies of the late 20th Century.	
PHIL 311 Symbolic Logic	3 credits	PHIL 440 Philosophy of Law	3 credits
Study of the elements of first order symbolic logic, i.e., the propositional calculus and the predicate calculus, and its applications to ordinary language and mathematics.		Discussion of philosophical issues in law by way of connecting legal problems to well-developed and traditional problems in philosophy, e.g., in ethics, political philosophy, and epistemology, and investigates the philosophical underpinnings of the development of law. The course takes an analytical approach to law (as opposed to historical sociological, political, or legalistic approaches) and devotes a substantial part of the semester to a major work on law written by a philosopher.	
PHIL 321W Social & Political Philosophy	3 credits	PHIL 450 (1-3) Special Topics	1-3 credits
Human rights and responsibilities in relation to the organization of society and government.		Intensive study of a single philosopher or topic.	
PHIL 322W Ethical Theory	3 credits	PHIL 455 Existentialism & Phenomenology	3 credits
Topics in normative, meta-ethical and applied ethical theory.		In-depth analysis of major European existentialists such as Kierkegaard, Heidegger, and Sartre.	
Prerequisites: Select one course: PHIL 120W, PHIL 222W, PHIL 224W, or PHIL 226W		PHIL 460 Philosophy of the Arts	3 credits
		Aesthetic principles, theories, and the creative process. Theories of visual arts, music, literature, dance, etc.	
PHIL 323W Philosophy of Economics	3 credits	PHIL 465 Philosophy of Film	3 credits
This course will introduce students to important texts in moral and social philosophy that provide the foundation for modern economics. In addition, we will discuss philosophical accounts of rationality, wellbeing, and freedom and their relevance to economic analysis.		This course investigates some of the central philosophical issues in our thinking about film, including questions about narrative, ontology, ethical criticism of film, the role of artistic intentions in interpretation, artistic medium, and the art/entertainment distinction.	
PHIL 334W History of Philosophy: Classical Philosophy	3 credits	PHIL 474 Philosophy of the Mind	3 credits
Philosophers of Ancient Greece, Rome and the early Middle Ages: The presocratics, Plato, Aristotle, Hellenistic and Roman philosophers, St. Augustine.		The nature of consciousness, mind and body relations, freedom of action.	
PHIL 336W History of Philosophy: Renaissance and Modern Philosophy	3 credits	PHIL 475 Philosophical Issues in Cognitive Science	3 credits
Late Medieval Philosophy and its influence on the Renaissance, Descartes, Spinoza, Leibnitz and Continental Rationalism, Locke, Berkeley, Hume and British Empiricism, and Kant.		This course examines the conceptual and philosophical complexities of efforts to understand the mind in science. Topics include the difference and similarities between humans and other animals, the nature of psychological explanation, and reductive strategies for explaining consciousness, intentionality and language. Fall	
PHIL 337 19th Century Philosophy	3 credits	PHIL 476 Philosophy of Perception	3 credits
Philosophers and philosophies of the 19th century.		Cognitive and epistemic issues surrounding sensory perception, including the nature of perception, its immediate objects, and its ability to deliver knowledge of the world.	

PHIL 477 Animal Minds	3 credits
Philosophical issues concerning the mental lives of non-human animals, with emphasis on consciousness, rationality, language, and implications for non-human animal ethics.	
PHIL 480 Philosophy of Science	3 credits
Nature of explanations, causality, theoretical entities, and selected problems.	
PHIL 481 Philosophy of Biology	3 credits
This course examines conceptual and philosophical issues in biology, the nature and scope of biological explanation and conflicts between evolutionary and religious explanations for the origin of life.	
PHIL 482 Philosophy of Social Science	3 credits
Examines the nature and methods of alternative strategies of theory construction in the social sciences and the metaphysical and epistemological assumptions and implications of such strategies. For example, can people, their behavior and norms of rationality be understood in naturalistic terms or must they be understood only in culturally local terms.	
PHIL 490 Workshop	1-6 credits
Special event of less than semester duration.	
PHIL 491 In-Service	1-6 credits
PHIL 497 Philosophy-Cognitive Science Thesis	3 credits
Restricted to Cognitive Science Majors in their final year.	
PHIL 499 (1-6) Individual Study	1-6 credits
Individual study of a philosopher or problem.	

Physics

PHYS 101 Introductory Physics	3 credits
A one semester course which covers the basic principles of physics on a conceptual level and with a minimal amount of math. The course provides an understanding of natural processes and their applications. Topics generally include mechanics, simple machines, atomic structure, heat, light and sound. Lecture and laboratory components.	
PHYS 105 Time, Atomic Clocks, and Relativity	3 credits
Self-paced format. Includes readings on time; telling time from sundials to atomic clocks; Albert Einstein (a biography of the primary developer of the Theory of Relativity); and the Theory of Relativity. All the readings are written to be understood by non-scientists.	
PHYS 150 Explorations in Physics	1 credits
This course is intended for students pursuing a Physics degree. The course offers an introduction to the field of physics, and prepares students for academic success in the program. Students will become familiar with current topics of physics research within the department, and better understand the career paths available with a physics major.	
PHYS 211 Principles of Physics I	4 credits
General background in physical concepts for those who do not plan advanced study in physics or engineering. Topics include mechanics, fluids, heat and thermodynamics. Lecture and laboratory.	
Prerequisites: Either MATH 112 and MATH 113, or MATH 115	
PHYS 212 Principles of Physics II	4 credits
Includes waves and sound, electricity and magnetism, light and optics, and topics in modern physics. Lecture and laboratory.	
Prerequisites: PHYS 211	

PHYS 220 Skills for Introductory Physics	2 credits
PHYS 220 focuses on mathematical methods for introductory physics and problem-solving skills framed in Newton's Laws at the introductory level. Specific topics include Vector Algebra and Trigonometry, Forces and Newtons Laws, and applications of Calculus to kinematics. The goal of the course is to provide students with supplemental preparation for a Calculus-Based Introductory Physics Course. Registration will require special permission.	
PHYS 221 General Physics I	4 credits
Designed for science and engineering students. Calculus-based physics. Covers elementary mechanics including kinematics, statics, equilibrium and dynamics of particles, work and energy, rotational motion, gravitation, and oscillation. Lecture and Laboratory. MATH 121 must be completed with a "C" or better prior to taking this course or must be taken concurrently. High school physics or PHYS 101 is also strongly encouraged. Fall, Spring	
Corequisites: MATH 121	
PHYS 222 General Physics II	3 credits
Designed for science and engineering students. Calculus-based physics. Covers electrical charge and field; magnetic field and its sources; current and resistance; simple DC and AC circuits; and electromagnetic induction. Lecture only. (Associated laboratory course is PHYS 232.) MATH 121 must be completed with a "C" or better prior to taking this course. MATH 122 must be completed before taking this course or taken concurrently. Fall, Spring	
Prerequisites: MATH 121 with a "C" or better; PHYS 221 with a "C" or better.	
Corequisites: MATH 122	
PHYS 223 General Physics III	3 credits
Designed for science and engineering students. Calculus-based physics. Covers fluids, thermodynamics, mechanical and sound waves, geometrical optics, physical optics, and modern physics. Lecture only. (Associated laboratory course is PHYS 233.) Pre: MATH 121 with a "C" or better; and PHYS 221 with a "C" or better. MATH 122 must be completed before taking this course or taken concurrently. Spring	
Prerequisites: MATH 121 with a "C" or better; and PHYS 221 with a "C" or better	
Corequisites: MATH 122	
PHYS 232 General Physics II Laboratory	1 credits
Designed for science and engineering students. Laboratory course accompanying PHYS 222. Experiments involving electric and magnetic fields, electric potential, electric and magnetic forces, and simple circuits. Laboratory only. Fall, Spring	
Prerequisites: PHYS 221 with a "C" or better; and PHYS 222 or concurrent.	
PHYS 233 General Physics III Laboratory	1 credits
Designed for science and engineering students. Laboratory course accompanying PHYS 223. Experiments involving fluids, thermodynamics, mechanical waves, geometrical optics, and physical optics. Laboratory only. Spring	
Prerequisites: PHYS 221 with a "C" or better; and PHYS 223 or concurrent.	

PHYS 280 Lab Experiences in Physical Science **3 credits**

For prospective teachers in elementary schools. Topics include weather, weather forecasting and record keeping, simple machines, electricity, chemistry, sound, light, and others. May not count as a physics elective. Not available for P/N grading.

PHYS 335 Modern Physics I **3 credits**

Special Theory of Relativity. Quantum nature of waves and particles: photons, de Broglie wavelength of matter and wave packet description of particles, Bohr model of hydrogen. Schrodinger wave equation in one-dimension: energy quantization, potential barriers, simple harmonic oscillator. One-electron atoms. X-ray and optical excitation of multielectron atoms. Lecture and laboratory.

Prerequisites: MATH 122; (PHYS 222 and concurrently with PHYS 223) or PHYS 212.

PHYS 336 Modern Physics II **3 credits**

Topics include the basics of molecular structure and spectra, classical and quantum statistical physics, solid state physics, nuclear physics, and particle physics. The lab component will teach the operation of various radiation detectors, and use them to study the interaction of radiation with matter.

Prerequisites: PHYS 335

PHYS 381 Tutoring Physics **1-3 credits**

Supervised experience as an instructional assistant. Must demonstrate ability in basic physics.

Prerequisites: Consent

PHYS 417 Biophysics **2 credits**

This course bridges the gap between introductory physics and its application to the life and biomedical sciences. Topics include fluid flow, membrane transport, nerve conduction, imaging methods including MRI, CT, and nuclear imaging, radiotherapy, and health physics.

Prerequisites: MATH 121, PHYS 212 or PHYS 222

PHYS 441 Mechanics **4 credits**

Rectilinear motion of a particle, general motion of a particle in three dimensions, Newtonian mechanics including harmonic oscillations, forced oscillations, central forces and orbital motion, collisions, noninertial reference systems, dynamics of a system particles, rigid body motion, Lagrangian and Hamiltonian mechanics, normal coordinates.

Prerequisites: PHYS 222 or PHYS 223; and MATH 321 or consent.

PHYS 447 Electricity & Magnetism I **3 credits**

Electrostatic fields, magnetostatic fields, steady currents, electromagnetic induction. Review of vector algebra.

Prerequisites: MATH 223 and MATH 321 and PHYS 222

PHYS 448 Electricity & Magnetism II **3 credits**

Electromagnetic waves, propagation and radiation of waves, electrodynamics and relativity.

Prerequisites: PHYS 223 and PHYS 447

PHYS 453 Solid State Physics **3 credits**

Atoms in crystals, wave in crystals, thermal vibrations of the crystal lattice, free electron model, band theory of solids, semiconductors and PN junctions, magnetism, and superconductivity.

Prerequisites: PHYS 335

PHYS 457 Optics **3 credits**

Geometric optics, wave optics, properties of light and matter, optics of transformations, and quantum optics. Lecture and laboratory.

Prerequisites: MATH 122 and PHYS 223

PHYS 461 Quantum Mechanics **4 credits**

A systematic development of foundations of quantum mechanics. Observables, operators, state functions, expectation values. Matrix formulation of eigenvalue problems. The hydrogen atom, electron spin, angular momentum, and perturbation theory.

Prerequisites: PHYS 335, PHYS 441, MATH 247, MATH 321

PHYS 465 Computer Applications in Physics **3 credits**

Numerical solutions of physics problems and computer simulations of physical systems. Lecture and laboratory. Prereq: Familiarity with some programming language and PHYS 212 or 222, and MATH 122, or consent

Prerequisites: CIS 121, MATH 122. Select one PHYS 222 or PHYS 223

PHYS 473 Statistical Physics **3 credits**

Fundamental principles of statistical physics, including theory of probability, kinetic theory of transport process, entropy, classical and quantum statistical ensembles, Bose and Fermi systems. Applications to thermodynamics and magnetic properties of solids.

Prerequisites: MATH 321 and PHYS 223

PHYS 475 Advanced Laboratory **2 credits**

Experiments in modern physics, including solid-state physics and optics. Requires more independent work than introductory laboratories.

Prerequisites: PHYS 336 or consent

PHYS 475W Advanced Laboratory **3 credits**

Experiments in modern physics, including solid-state physics and optics. Requires more independent work than introductory laboratories.

Prerequisites: PHYS 336 or consent

PHYS 482 Teaching Methods and Materials in Physical Science **4 credits**

Current methods of teaching all physical sciences with emphasis on physics and chemistry. For students planning to teach at a middle school, secondary school, college, or a university

Prerequisites: one year of chemistry and one year of physics, or consent

PHYS 492 Seminar **1 credit**

Students will attend research seminars presented by faculty in the department, or speakers from other institutions. Students also make and critique presentations made by themselves and other students. May be repeated for credit. Spring

Prerequisites: Completed at least two upper division physics courses.

PHYS 493 Undergraduate Research **1-6 credits**

Prerequisites: Consent

PHYS 495 Selected Topics **1-2 credits**

A course in an area of physics not regularly offered. Topic and credit assigned by department each time offered.

Prerequisites: PHYS 335 and PHYS 336

PHYS 497 Internship **1-16 credits**
Provides a student with the opportunity to gain expertise and experience in a special field under the supervision of a qualified person.

Prerequisites: Usually Senior standing

PHYS 499 Individual Study **1-8 credits**
Special arrangements must be made with an appropriate faculty member of the department office. May be repeated for credit on each new topic.

Prerequisites: Consent

Political Science

POL 100 Introduction to Politics **4 credits**
Study of the nature of politics and government and their influence on society and human behavior.

POL 101 Introduction to Public Life **4 credits**
Combine study with action to remake yourself into a democratic citizen. Consider your beliefs, debate issues and learn political skills. Integrate these in practical public work on a real issue or project in a student group or community organization.

POL 103W Thinking About Politics **4 credits**
This course is designed to help you to read, think and write critically about important concepts and issues in the study and practice of politics. It is intended to acquaint you with some of the great debates in political thought, increase your understanding of how political systems work and help you to develop your research and writing skills.

POL 104 Understanding the U.S. Constitution **4 credits**
Rejoin the political debates of 1787 to understand the US Constitution. Compare the founding document with amendments, later usage and Supreme Court interpretations. Examine controversies over the meaning of the Constitution using the methods of political philosophers, historians, and legal scholars.

POL 106 Politics in the World Community **4 credits**
This introductory course examines key concepts and issues in contemporary world politics. It is a survey course covering topics including political culture, the political impact of economic globalization, the changing role of the state, nationality and ethnic identity, and issues of oppression and empowerment.

POL 111 United States Government **4 credits**
Become informed enough to play your part in governing the United States. Start by learning about the Constitution, our rights and freedoms, how the national government works and the opportunities and challenges of citizen influence. Political Science methods, and the challenges of citizenship are emphasized.

POL 201 Issues in Politics **1-4 credits**
Various topics of current interest. Topics covered in the past include political corruption, contemporary ideologies, revolution, understanding the United States Constitution, political films. Course may be taken more than once for credit.

POL 221 Quantitative Methods in the Social Sciences **4 credits**
Students will develop knowledge and understand the application of statistical concepts and quantitative methodologies to real-world social and political issues. Using social science data, students will analyze and interpret data to answer research questions relevant to the public and non-profit sectors.

POL 231 World Politics **4 credits**
An introduction to the dynamics of interactions among sovereign states and other global actors.

POL 234 Model United Nations **4 credits**
The course is intended to prepare students to participate in the model UN. Students learn about issues before the UN and acquire a variety of communication and negotiating skills as they model the role of ambassadors.

POL 241 Introduction to Comparative Politics **4 credits**
This course is designed to acquaint undergraduates with the data and methods of comparative politics. Approaches to the study of comparative politics may include country studies, regional studies, global surveys focusing on specific policy areas or other issues, and general comparative theory.

POL 260 Introduction to Public Policy and Administration **4 credits**
This course provides an introduction to public policy and public administration in the United States. Specifically, this course will examine theories, concepts, and relevant public policy issues and administrative issues using appropriate theoretical frameworks and methodologies.

POL 271 State & Local Government **4 credits**
Institutions, processes, intergovernmental relations, and politics of U.S. state and local governments.

POL 311 Ancient & Medieval Political Philosophy **4 credits**
A survey of Western political philosophy from Plato through the Conciliar Movement. An examination of the origin and development of basic concepts defining the relationship between the person and the state: human nature, community, authority, power, legitimacy, obligation, accountability, government, liberty and personal responsibility.

POL 312 Early Modern Political Philosophy **4 credits**
A survey of Western political philosophy from Machiavelli through Edmund Burke. An examination of the development of ideas about government from the 15th Century through the 18th Century. Emphasis is placed on origins of political authority, purposes for which government exists, relationships between government authority and individual rights, civic virtue, republicanism and democracy.

POL 313 Modern Political Philosophy **4 credits**
A survey of Western political philosophy from Hegel through the post-modernist writers. An examination of 19th and 20th Century political philosophers emphasizing German transcendentalism, utilitarianism, economic determinism, state socialism, neoliberalism, communitarianism and post-modernism.

POL 321 Democracy and Citizenship **4 credits**
Students learn about active citizenship from readings and discussions on the theory and practice of democracy. Students should become more motivated to participate, feel a greater sense of empowerment, improve political skills, and to better understand and appreciate democracy.

Corequisites: POL 322

POL 361 Public Budgeting **4 credits**
An overview of the budgetary and fiscal processes of public budgeting, including the politics surrounding public budgeting and fiscal policy decisions.

POL 410 Topics in Political Philosophy **4 credits**
This course explores topics in political philosophy beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with change of topic.

POL 414 Early United States Political Thought 4 credits
Political thought in the United States from the colonial period to the Civil War. Puritans, American revolution, republicanism, debate over United States Constitution, Jacksonian Democracy, Thoreau, reformers and religious and secular utopias, women's rights, states' rights, abolitionism, proslavery.

POL 415 Recent United States Political Thought 4 credits
Political thought in United States from reconstruction to present. Controversies over industrial capitalism: Social Darwinism, Utopian Socialism, Populism, Socialism, Progressivism. Women's Rights, suffrage movement and contemporary feminism; African American political thought: liberalism; conservatism.

POL 420 Topics in Participation and Behavior 1-4 credits
This course explores topics in political participation and behavior beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

POL 422 Campaigns & Elections 4 credits
Elections in the United States at the federal, state and local levels. Election law, history, factors affecting elections, voting behavior, campaign finance, role of parties and groups, campaign strategy and tactics. Analysis of contemporary elections.

POL 423 Political Parties 4 credits
Political parties at United States, state, local levels. Cross-national comparisons. Decline and revival of parties. What parties do. Is the two-party system the best? Are third parties the answer? Party organization. Voting behavior. Legislative, executive parties. Minnesota focus.

POL 424 Women & Politics 4 credits
Politics impact on women: women's impact on politics and governance; primary focus on United States but some comparative considerations.

POL 426 Racial and Ethnic Politics 4 credits
Racial and ethnic minorities in U.S. politics. Public opinion on racial issues, minority representation, race (partisanship and voting behavior), and racial issues (affirmative action, school busing, immigration).

POL 427 Political Psychology 4 credits
Applications of psychological concepts to politics. Intergroup relations, stereotyping, political authoritarianism, presidential character and psychology, foreign policy decision-making, political tolerance, and mass violence and genocide.

POL 428 Media, Entertainment, & Politics 4 credits
Course will explore the intersecting realms of media, entertainment, and politics. Students will explore how a convergence of social change, public policy shifts, and technology evolution have affected the three realms and facilitated greater intersections among them. Students will then analyze the overall impact these realms and their changes have had on our political lives.

POL 430 Topics in International Relations 1-4 credits
This course explores topics in international relations beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

Prerequisites: POL 231

POL 431 International Relations 4 credits
An advanced theoretical survey of the dynamics of politics and political change at the global level.

Prerequisites: POL 231

POL 433 International Organization 4 credits
Study of the function and process of the United Nations and other international organizations.

Prerequisites: POL 231

POL 434 United States Foreign Policy 4 credits
This course is a general overview of US foreign policy institutions, processes, and politics. U.S. foreign policy is examined in historical, global and domestic contexts.

Prerequisites: POL 231

POL 435 Capitalism, Nationalism, and Democracy 4 credits
This course explores the interaction of the three complex contemporary political and socioeconomic phenomena: the continuing expansion of global capitalism, the rise of nationalism(s), and the new wave of democratization around the world. The following topics are covered and discussed in class, with references to specific country and regional examples, (1) the impact of international economic institutions and democratization, (2) new forms of political participation in emerging democracies, (3) cultural and ethnic determinants of democratization, (4) problems of economic inequality in new democracies, (5) social and gender issues of democratic transitions, and (6) the relationship between democratic expansion and world peace. Course format will be lecture, discussion, student presentations and occasional films.

Prerequisites: POL 241

POL 436 International Political Economy 4 credits
Focusing on patterns, processes, and problems of international trade, monetary, technological, and investment relations, this course examines the roles played by key government organizations in managing conflict and cooperation among states.

Prerequisites: POL 231

POL 437 International Conflict Resolution 4 credits
This interdisciplinary proseminar focuses on conflict resolution in the international arena. We will discuss causes of conflict, examine approaches to the study of conflict resolution, and analyze the varieties of nonviolent strategies of conflict resolution, emphasizing third party mediation.

Prerequisites: POL 231

POL 438 International Relations of East Asia 4 credits
An overview of the international relations of East Asia, the course examines cooperation and conflict among major powers in the area: China, Japan and the United States. Topics include Japan's pre-WWII expansionism, China's political transformation and North Korea's nuclear controversy. Fall, Spring

POL 439 Comparative Social Policy: The Welfare State in Europe and the Americas 4 credits
This course offers a cross-national perspective on the politics of social policy and the welfare state in industrialized parts of the world, including North and South America and different regions of Europe. It also explores distinct national patterns of public policy solutions to the common contemporary problems of social security, poverty, and health care by paying close attention to both domestic factors and the forces of globalization that work to constrain government decisions. This multidimensional approach is designed to enable students to better understand how politics work in different ways to produce collective or social choices.

Prerequisites: POL 241

POL 440 Topics in Comparative Politics 1-4 credits
This course explores topics in comparative politics beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

Prerequisites: POL 241

POL 441 Russia & Neighboring States Politics 4 credits
This course focuses on the Russian political system in relation to domestic social and economic environments and also on the role of Russia as a global actor. It examines the post-communist transformation in Russia and other former Soviet republics.

Prerequisites: POL 241

POL 442 South Asia: Politics & Policy 4 credits
This course introduces students to the governments and politics of the South Asian countries. The historical and cultural context of politics are explored, as well as contemporary issues.

Prerequisites: POL 241

POL 443 Middle East Politics 4 credits
This class explores the dynamics that determine politics and effect change in the region. Using a comparative perspective for the major countries in the region, we examine such issues as Islam, nationalism, resources, regional conflicts, impact of the international system, and political development.

Prerequisites: POL 241

POL 444 Conflict and Development in Latin America 4 credits
This course includes a detailed analysis of select countries and theoretical concerns in Latin American studies. Its general goal is to provide students with the knowledge of Latin American politics and societies in both regional and comparative contexts.

Prerequisites: POL 241

POL 445 Asian Pacific Rim: Politics & Policy 4 credits
Survey of the political processes, governmental institutions and policies of the countries of the Asian Pacific Rim, with special emphasis on China, Japan and the newly industrializing states of Southeast Asia.

Prerequisites: POL 241

POL 446 African Politics 4 credits
This course is designed to acquaint undergraduate and graduate students with key concepts and issues in the study of African politics. The historical and cultural context of politics is explored, as well as topics of current importance in the field.

Prerequisites: POL 241

POL 447 European Democracies 4 credits
This course discusses government institutions, political developments, and policymaking structures of contemporary Europe, including the former communist countries of East/Central Europe and the Balkans. It will also cover the ongoing process of European integration (European Union) and democratization of the former Soviet bloc countries. Some of the topics covered will include: elections, party systems, federalism and devolution, ethnic and minority policy, social policy, economic reforms, gender and politics, and cross-Atlantic relations with the US.

Prerequisites: POL 241

POL 448 Political Development & Change 4 credits
This course introduces students to key issues and concepts in the study of political and economic development. Both theoretical approaches and empirical data are presented. The course is also designed to enhance students' analytical and research skills.

Prerequisites: POL 241

POL 450 Topics in Public Law 1-4 credits
This course explores topics in public law beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

POL 451 Administrative Law 4 credits
Legal procedures by which state and federal administrative agencies exercise legislative, judicial and executive powers. Emphasis is placed on the constitutional position of administrative agencies, the rule making process, the power of agencies to decide rights and obligations concerning individual cases, and judicial control of administrative action.

POL 453 Constitutional Law 4 credits
Review of selected U.S. Supreme Court decisions relating to the powers of the President, Congress and the Judiciary, as well as the division of power between the states and the federal government. Focus is on case briefing, underlying rationales, and the development of individual analytical abilities.

POL 454 Civil Liberties 4 credits
Review of selected U.S. Supreme Court decisions interpreting areas such as substantive due process, abortion, speech, press, religion, and equal protection. Focus is on the rationale which underlies decisions and the development of individual analytical abilities. Same as LAWE 436

POL 455 American Legal Philosophy 4 credits
This course examines major schools in American legal thought from the dawn of the 20th century to the present day. Our focus will lie with turn-of-the-century formalism; legal realism; the legal process school; law and economics; and critical legal studies. We will apply legal reasoning from these schools to selected controversial 20th-century Supreme Court cases on church-state issues, gay and lesbian rights, privacy rights, criminal defendants' rights and other issues as appropriate.

POL 460 Topics in Public Policy/Administration 1-4 credits
This course explores topics in public policy and public administration beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

POL 461 Environmental Politics 4 credits
Politics of the natural environment (U.S. focus). Environmental and opposition values; roles of public opinion, Congress, presidency and courts in environmental policy making. Policy areas include: air/water pollution, climate change, hazardous/nuclear waste, sustainable development, and commons problems like overfishing.

POL 462 Collective Bargaining: Public Sector 4 credits
A broadly based introduction to the issues, processes, and techniques of public sector labor relations.

POL 463 Public Personnel Administration 4 credits
The development of public personnel management in federal, state and local governments; strategic planning and policy making, position management, staffing, performance management, workplace relations.

POL 465 Food and Agriculture Policy 4 credits
This course explores the interconnection between political systems, public policy, and food systems. Current food and agricultural policy are evaluated in light of political, economic, and societal conditions.

POL 466 Entertainment and Public Policy 4 credits
This course examines entertainment policy from historical, cultural, political, and societal perspectives. Among other topics, this course will use a public policy framework to examine the impact of local government policies like noise ordinances, copyright laws, 1st amendment issues of free expression and assembly, and the historical and cultural significance of music as a catalyst for social change.

POL 467 Housing and Health Policy 4 credits
This course examines the relationship between housing and health, with a focus on how housing policies and programs can affect the health and well-being of individuals and communities. The course covers the historical, theoretical, and empirical aspects of housing and health, as well as the current challenges and opportunities for improving both. The course also explores the role of stakeholders and institutions in shaping and implementing housing and health policies, such as government institutions, markets, society, and policymakers.

POL 470 Topics in Institutions & Process 1-4 credits
This course explores topics in political institutions and process beyond what is covered in the existing curriculum. Students study specialized topics of current importance in the field. Specific topics will change depending on the term and instructor. May be retaken with a change of topic.

POL 471 Public Opinion and Polling Methods 4 credits
This course examines public opinion in American politics. Topics include the definition, nature and consequences of public opinion; political socialization; public opinion on selected issues; intergroup differences in public opinion, and public opinion polling methods.

POL 473 United States Congress 4 credits
United States Congress and state legislatures, with some cross-national comparisons. Legislative structure, powers; districting, elections, representation, constituency relations; committee system, parties, law-making process, rules and procedure, decision-making, relations with executives and courts. Reforms.

POL 474 The Presidency of the United States 4 credits
Examination of executive politics in United States at a federal and state level, with some cross-national comparisons. United States presidency and executive branch, governors and state executive branches, mayors, and other local executives.

POL 475 Judicial Process 4 credits
An examination of the structure, jurisdiction and processes of federal and state courts. Also studied are judicial decision-making, the selection of judges and justices. Same as LAWE 437.

POL 476 Southern Politics 4 credits
The course examines politics in the American South. It examines the historical and cultural roots of Southern distinctiveness, traditionalistic political culture, racial conflicts, hostility toward organized labor, religious fundamentalism, tolerance of state violence, and social and moral conservatism. Major attention is paid to the realignment of white Southerners toward the Republican Party.

POL 491 Internship 1-12 credits
Field placement with a governmental agency or related organization. Provides a learning experience in which the student can integrate and apply knowledge and theory derived from curriculum. P/N only.

POL 492 (1-5) Individual Study 1-5 credits
Advanced study and research on topics not currently available in existing courses. May be repeated with a change of topic. Requires advisor and instructor approval of topic.

Psychology

PSYC 101 Introduction to Psychological Science 4 credits
This course is designed to provide a thorough introduction to the broad spectrum of theories and applications that make up the field of psychology

PSYC 103W Psychology Today 3 credits
Introduces students to major issues in society that impact their lives, behaviors, and the way they think. Course requires student to critically address controversial and non-controversial issues through clear argumentations, intensive writings, research and presentations.

PSYC 150 Science of Learning for College Student Success 2 credits
You have spent years taking tests to measure learning, but do you know how to make the most of your learning in college? In this course we will look at what current learning science research in psychology tells us about how to best learn and remember. A strong emphasis will be made in applying science learning topics to college success.

PSYC 201 Statistics for Psychology 4 credits
This course emphasizes understanding the conceptual basis of common statistical procedures and applying those procedures to the problems of organizing information and making inferences from data. Topics include: summarizing data, the logic of inference, estimation, analysis of variance, and correlation.

Prerequisites: Complete one course: MATH 112, MATH 113, MATH 115, MATH 121, MATH 130, or STAT 154

PSYC 202 Careers in Psychology 1 credits
Exploration of various degrees and types of careers available in psychology, and what psychologists do.

PSYC 205 Psychology of Sexual Health 4 credits
An introduction to the psychological aspects of sexual health including sexual stigma and taboos, debunking myths and identifying misinformation, understanding capacities to consent, and overcoming barriers to sexual wellness.

PSYC 206 Introduction to Cognitive Science 4 credits
This course introduces a multidisciplinary approach to the scientific study of cognition. Contributions from the fields of biology, computer science, neuroscience, philosophy, and psychology are emphasized. Topics include the mind-body problem, perception, memory, linguistics, problem solving, artificial intelligence, and robotics. This course is a prerequisite for the cognitive science major. For the psychology major, it serves as unrestricted elective credit; it does not satisfy the cognitive restricted elective requirement.

PSYC 211W Research Methods and Design 4 credits
An introduction to the major components of research methodology in psychology. This is a writing intensive course and involves the processing, interpretation, and exposition of behavioral data.

Prerequisites: Must have a minimum total cumulative GPA of 2.70 or instructor permission to enroll; PSYC 201

PSYC 219 Psychology of Diversity and Inclusion 4 credits
This class will cover the psychological experiences of diverse individuals in American educational, work, health care, consumer, and legal environments. Diversity in this course will be broadly defined to include race/ethnicity, gender, sexuality, age, obesity, pregnancy, disability status, and others as deemed appropriate. Topics of prejudice, discrimination and stigma will be discussed. We will also discuss potential solutions to diversity-related problems in these environments.

PSYC 230 Child Care Psychology 3 credits
This course is designed to develop an understanding of major variables that impact the psychological development of children. Emphasis will be placed on what parents and other care givers can do to maximize the healthy psychological development of their children.

PSYC 240 Personal Adjustment 3 credits
Understanding oneself and increasing one's satisfaction in living.

PSYC 291 Tutoring Psychology 1-4 credits
Application of the principles of learning to the instruction of students.

Prerequisites: PSYC 101

PSYC 303 Introduction to Clinical Psychology 3 credits
This course is designed for psychology majors who plan careers in professional psychology (clinical, school, etc.). The purpose of the course is to assist students in developing the skills necessary to compete for graduate school placement. It is advised that students complete this course during their sophomore or junior year.

PSYC 304 Introduction to School Psychology 2 credits
This course is designed to introduce students to school psychology. The course will broadly address prominent topics in the field as well as assist students in deciding on graduate school and career objectives.

PSYC 321 Introduction to Brain and Behavior 4 credits
This course will introduce students to the relationship between the structure and function of the nervous system to the underlying biological processes of behavior.

Prerequisites: PSYC 201

PSYC 325 Introduction to Cognitive Psychology 4 credits
Explores the scientific study of human cognition and provides students with broad coverage of the mental processes used to acquire, process, and retain knowledge. Students will examine basic concepts and research findings in topics of human cognition such as perception, attention, memory, reading, and problem solving. Concepts in Cognitive Psychology will be related to everyday behaviors and experiences.

Prerequisites: either PSY 101 OR PSY 206, not both

PSYC 340 Introduction to Social Psychology 4 credits
An exploration of theories and research related to the ways that the social environment affects people's behavior.

Prerequisites: PSYC 101

PSYC 343 Introduction to Developmental Psychology 4 credits
This course examines changes in human behavior over the entire lifespan from conception to death. Topics cover developmental changes in physical, cognitive, and social domains. Traditional theories are integrated with current findings of developmental researchers.

Prerequisites: PSYC 101

PSYC 358 Introduction to Cultural Psychology 4 credits
Cultural psychology is an interdisciplinary field that unites psychologists, anthropologists, linguists and philosophers to study how cultural meanings, practices and institutions influence and reflect individual human psychologies. Cultural influences on cognition, perception, emotion, motivation, moral reasoning, and well-being will be discussed with a view towards understanding divergent mentalities by drawing primarily from studies comparing Eastern and Western cultures, as well as some ethnic group companions within the United States. Students should come out of this course with an appreciation for the capacity for humans to create psychological diversity. Diverse Cultures: Purple

PSYC 363 Introduction to Industrial/Organizational Psychology 4 credits
An examination of the psychological aspects of human behavior in the work place. Topics include history of Industrial/Organizational psychology, job analysis, performance measurement, predictors of performance, making personnel decisions, training, satisfaction, social perception, motivation, communication, group process, leadership, and organizational culture.

PSYC 389 Psychology and the Law 3 credits
This course will introduce you to specific psychological theories and research that have been applied to the United States legal system. Course topics include eyewitness testimony and memory, false confessions, lie detection, gender and ethnicity, and jury processes, among others.

PSYC 398 CPT: Co-Operative Experience 0 credits
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and on adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: PSYC 101. At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

PSYC 401 Clinical Sexuality 4 credits
This course provides an overview of the diagnostic criteria, etiology, and interventions for sexuality-related concerns, including sexual dysfunctions, paraphilic disorders, and compulsive sexual behavior. Cultural diversity within the context of sexuality is emphasized.

PSYC 409 History and Systems 4 credits
Examination of the historical origins of the principal contemporary psychological theories.

Prerequisites: PYSC 211w

PSYC 410 Communicating Psychological Science 4 credits
This course will provide students with knowledge and strategies to describe, identify, and write about Psychological Science. This course will reinforce the science of Psychology through the teaching of successful communication strategies of psychological concepts. Students will complete the course demonstrating how to successfully communicate the discipline to the public.

Prerequisites: PSYC 201, PSYC 211W

PSYC 413 Sensation & Perception 4 credits
How the senses respond to environmental stimuli and how the information they provide is organized into meaningful patterns that make up our experience of the physical world. The effects of maturation and learning in altering those patterns as also considered.

Prerequisites: PSYC 201

PSYC 414 Learning **4 credits**
This course provides a broad overview and analysis of the major theories of human and animal learning.

Prerequisites: PSYC 101

PSYC 415 Human Memory **4 credits**
This course covers experimental and behavioral studies of human memory including long-and short-term memory, memory for text, pictures, spatial information, and autobiographical events. Emphasis on real-world situations, including education, in which memory and learning play a role.

Prerequisites: PSYC 211W

PSYC 417 Advanced Topics in Cognitive Psychology **1-4 credits**
This course provides students with an overview of the fundamental principles and current research on selected topics in cognitive psychology through critical evaluation, discussion, and application. May be re-taken for credit. Specific course topics will be determined by the instructor.

Prerequisites: PSYC 325, PSYC 414, PSYC 415 (ONE course from that list, not all 3)

PSYC 419 Psychometric Theory **4 credits**
An overview of development, use, and validation of psychological tests. Topics include reliability and validity, test construction, item analysis, ethics, test administration and scoring, and computerized testing.

Prerequisites: PSYC 211W

PSYC 420 Psychopharmacology **4 credits**
Biological foundations of the actions of psychoactive drugs. Neuroanatomy structure and function, neurophysiology, pharmacokinetics and pharmacodynamics will be covered in detail. Relevant classes of drugs will be highlighted with an eye toward their history, mechanisms of action, effects, and treatments.

Prerequisites: PSYC 211W

PSYC 421 Behavioral Neuroscience **4 credits**
Biological basis of psychological processes and behavior. Neuroanatomy, neural function, and laboratory methods of investigation will be explored in relation to topics such as sleep, memory, language, intelligence and psychological disorders.

Prerequisites: PSYC 201, PSYC 211W

PSYC 423 Cognitive Neuroscience **4 credits**
The goal of neuroscience is to understand the human mind. This goal is approached by revealing the brain processes involved in how we perceive, think, remember, and move. Brain development, communication, and plasticity at the neural level are all described.

Prerequisites: PSYC 211W, PSYC 321

PSYC 430 Advanced Topics in Biological Psychology **4 credits**
This course provides students with an overview of the fundamental principles and current research on selected topics in biological psychology through critical evaluation and discussion.

Prerequisites: PSYC 211W, PSYC 321

PSYC 432 Advanced Topics in Developmental Psychology **1-4 credits**
This course provides students with an overview of the fundamental principles and current research on selected topics in developmental psychology through critical evaluation, discussion, and application. May be re-taken for credit. Specific course topics will be determined by the instructor.

Prerequisites: PSYC 433, PSYC 436, PSYC 343, PSYC 466: One course from this list, not all 4

PSYC 433 Child Psychology **4 credits**
Physical, social, emotional, intellectual, and personality development from conception to preadolescence. Focus on interplay between maturation and experience.

Prerequisites: PSYC 101

PSYC 436 Adolescent Psychology **4 credits**
This class covers the development of the individual from the age of 11 to 19 years of age. Discussion will include aspects of both normal and abnormal development.

PSYC 442 Group Psychology **3 credits**
Exploring factors affecting leadership and effective group processes through lectures and discussion of theories and findings and through experiential activities.

Prerequisites: PSYC 101

PSYC 443 Advanced Social Psychology **4 credits**
An in-depth examination of social psychological research in laboratory and field settings.

Prerequisites: PSYC 211W, PSYC 340 or PSYC 358

PSYC 445 Advanced Topics in Social Psychology **1-4 credits**
This course provides students with an overview of the fundamental principles and current research on selected topics in social psychology through critical evaluation, discussion, and application. May be re-taken for credit. Specific course topics will be determined by the instructor.

Prerequisites: PSYC 340, PSYC 358, PSYC 455, PSYC 460W (ONE course from list, not all 4)

PSYC 450 Advanced Cognitive Psychology **4 credits**
Advanced Cognitive Psychology introduces students to key research papers in the field of human cognition. Through reading, writing, and the study of experimental design, students will advance their understanding of cognitive psychology and develop their ability to critically review and evaluate research.

Prerequisites: PSYC 211W, PSYC 325

PSYC 455 Abnormal Psychology **4 credits**
This course is designed to increase the student's awareness and understanding of abnormal psychology. Students will become familiar with clinical descriptions, course of onset, and treatment regimens specific to various disorders.

Prerequisites: PSYC 101

PSYC 460W Psychology of Women 3 credits

A critical examination of current psychological approaches to the study of women's behavior and experience. The course will emphasize empirical ways of knowing and address psychological questions of central concern to women. Development of gender differences also will be explored. Diverse Cultures: Purple

Prerequisites: PSYC 101

PSYC 461 Marketing Psychology 3 credits

Analysis of product marketing and consumer purchasing strategies and their determinants.

Prerequisites: 8 PSYC credits

PSYC 466 Psychology of Aging 4 credits

Aging process and development during the adult years; psychology and psychological concerns of the aging individual; dealing with death.

Prerequisites: PSYC 101

PSYC 476 Introduction to Applied Behavior Analysis 4 credits

This course is designed to help students understand the philosophical underpinnings of applied behavior analysis and to demonstrate how behavior theory is applied in real world settings. The class also will inform students about different strategies that may be used to assess and change behavior, as well as the variety of settings in which behavioral principles and interventions may be applied to human behavior.

Prerequisites: PSYC 211W

PSYC 478 Health Psychology 4 credits

The interface of behavioral and medical science is explored. Research on environmental and learning factors in the etiology and treatment of physical disease and rehabilitation is examined. Specific topics include pain management, medical compliance, behavior disorders in nursing homes and on chronic illnesses.

Prerequisites: Three courses in PSYC

PSYC 485 Topics in Applied Psychology 1-4 credits

Application of psychology to topics of current interest. May be retaken for credit.

Prerequisites: PSYC 101

PSYC 489 Advanced Topics 1-5 credits

Application of psychology to topics of current interest. May be retaken for credit.

PSYC 490 Workshop 1-3 credits

Topics to be announced. May be retaken for credit.

PSYC 496 Laboratory Research in Psychology 2 credits

Individualized research experience with a faculty mentor in the psychology department. You will gain specific research experience as designed by a faculty mentor. To register for this course, you must first apply and be accepted to join a psychology faculty members' research team.

Prerequisites: PYSC 211W

PSYC 497 Field Experience 1-8 credits

A learning experience integrated with the student's course of study, to be developed with an advisor and the field experience coordinator. May be retaken for credit up to 8 credit total for all enrollments. Available for P/N grading only. Prereq: 9 credits of PSYC

Prerequisites: PYSC 211W

PSYC 499 Individual Study 1-4 credits

Individualized learning under faculty supervision.

Recreation, Parks, and Leisure Services

RPLS 100 Introduction to Recreation and Parks Leadership Studies 3 credits

A foundation course that introduces the student to the profession of leisure services. Emphasis is placed on recreation in the student's life, the development of the profession, the community leisure service system and careers in recreation, parks and leisure services.

RPLS 150 Esports Skills Development 1 credit

This course addresses esports collaboration and exposes active contribution into competitive esports play. Esports is studied in relation to commitment to improve, self-confidence, mental practice, focus, social development, collaboration, goal setting and strategic thinking. Students will be introduced to mechanics, metadata, structure, and strategies needed to win and put those skills together to build the team and practice in the game.

RPLS 165 Introduction to Community Tourism and Travel 3 credits

This course reviews the significance and potential of tourism and travel at the community level. The focus is on small to mid-size examples and the ways in which community tourism is a collaboration between various organizations and city park and recreation departments to develop, promote, and implement tourism events.

RPLS 175 Natural Resources and Conservation in RPLS 3 credits

In this course we will explore the importance of the natural world and how individuals and societies interact with and impact nature. Students will apply ethical frameworks of sustainability, rights, and justice to understand conservation and resource management practices in public and private lands. Students will analyze and reflect upon complex narratives that guide how diverse people and natural systems interact.

RPLS 182 Wildlife as a Recreational Resource 3 credits

A broad survey course that is concerned with game and non-game wildlife species. Habitat is stressed throughout the course as a necessity for maintaining a species. Funding of wildlife programs and changing attitudes of the public are concerns throughout this course.

RPLS 185 Undergraduate Open Seminar 1-3 credits

This course covers various topics for undergraduates in Recreation and Parks Leadership Studies and related fields. Students are exposed to best practices and current challenges in the industry and are given experiential opportunities to make connections for career advancement. Additional fees may apply. May be repeated, as topics vary.

RPLS 250 Therapeutic Recreation Services 3 credits

This course is designed to be an overview of Therapeutic Recreation Services in a variety of human service settings with emphasis on the assessment, planning, implementation and evaluation of leisure and recreation programs performed by therapeutic recreation specialists serving persons with physical, mental, emotional or social limitations. Diverse Cultures: Purple

RPLS 276 Recreation Leadership 3 credits

Through interactive assignments, students will learn and practice the skills and techniques used by direct leaders in the Recreation and Parks profession. Topics include an introduction to leadership practices, program planning, activity selection, and activity facilitation for diverse groups.

RPLS 293 Leisure, Recreation, Play, and Well-Being 3 credits

This course addresses leisure wellness and incorporates leisure into life as a balancing force for healthy living. Leisure is studied in relation to: work, time and money management, stress management, healthy relationships, life choices and decisions, personal and community resources, career opportunities and in relation to current issues in politics and in the work place.

RPLS 302 Pre-Practicum Seminar 2 credits

This course is designed to be taken two semesters before students completes their practicums. It will help students identify and secure a practicum. It will also help students establish reasonable expectations for a quality practicum experience.

RPLS 325 Experiential Education and Outdoor Programming 3 credits

An introduction to experiential education practices, methods for instruction and planning in outdoor settings, and outdoor skill development.

RPLS 341W Research Methods in RPLS 3 credits

This course will explore research design with emphasis related to the areas of recreation, parks, and leisure sciences. Basic overview of research methodologies commonly utilized in leisure sciences and approaches to RPLS research will be explored through review of original research. Students will be required to produce and revise scientific writing with specific focus on presenting material to audiences in the RPLS field. Team-based problem centered research questions will be developed and investigated using methodology with current RPLS-related issues.

RPLS 350 Methods of Interpretation in RPLS 3 credits

Students will be introduced to various methods and skills used to design and deliver interpretive programs and materials to various audiences. Students will also apply the philosophies, concepts, theories and practical skills necessary for implementing effective interpretive programs.

RPLS 365 Commercial Recreation and Tourism 3 credits

This course is a survey of commercial recreation and tourism that examines the basic types of commercial recreation and tourism providers, some basic trends in commercial recreation and the social, economic and environmental impacts of commercial recreation and tourism.

RPLS 373 Operations and Facility Management in RPLS 3 credits

This course introduces students to basic management and operations techniques for a wide variety of indoor and outdoor recreation facilities.

RPLS 375 Recreation Technology 3 credits

This course is designed to provide students with knowledge, skills, and tools to effectively implement technology in recreation. Students will have the opportunity to explore practical applications of technological in recreation. The objective of this class is to introduce the student to the variety of ways computers and other technologies are used in everyday recreation management.

Prerequisites: RPLS 272 or with instructor permission.

RPLS 376 Program Planning in RPLS 3 credits

The emphasis of this course is on the program planning process- from creating the idea through evaluation of the program- and how it fits into the agency profile. Various formats such as leisure learning, tournaments, trips and outings, and special events are highlighted for a variety of leisure service agencies.

RPLS 377 Public Relations 3 credits

Focuses on the total planning, implementation and techniques of effective public relations.

RPLS 377W Public Relations 3 credits

Focuses on the total planning, implementation and techniques of effective public relations.

RPLS 384 Field Experience 1 credits

Students are required to complete the Field Experience in order to be eligible to enroll in RPLS 495 Practicum. Students will contract with the advisor to complete 100 hours of volunteer or paid experience in a leisure services organization. Written permission required from the advisor.

RPLS 393W Advancing Diversity, Equity, and Inclusion in RPLS 3 credits

Diversity, equity, and inclusion within RPLS has evolved from a focus on control by othering to a strategic-level effort to enhance quality of life and wellbeing in our communities. While we aspire to create a community climate that acknowledges and appreciates diversity, equity, and inclusion, current community practices lag behind this aspiration. We will explore language around diversity, equity, and inclusion to engage in discourse that requires us to acknowledge our history and ways we can learn, heal, and advocate for equitable practices related to recreation programming and access to spaces.

RPLS 398 CPT: Co-Operative Experience 0 credits

Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one summer and on adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

RPLS 440 Therapeutic Recreation Assessment 3 credits

Students will learn about and gain experience with assessment as it is practiced in therapeutic recreation settings. The course focuses on the basics of assessment, the four most frequently utilized information gathering techniques, and commonly used assessment instruments.

Prerequisites: RPLS 272, RPLS 274 or with instructor permission.

RPLS 445 Foundations of Therapeutic Recreation Practice 3 credits

This course explores the philosophical and theoretical foundations of therapeutic recreation. Specifically, the relationships among recreation, leisure, health and well-being are examined as articulated by a number of authors. Students critically analyze the required materials and discuss potential implications for therapeutic recreation and therapeutic recreation specialists.

Prerequisites: RPLS 272, RPLS 274, or with instructor permission.

RPLS 447W Therapeutic Recreation Process 3 credits

This course details the Therapeutic Recreation process: assessment, planning, implementation and evaluation in relation to individual treatment programs in Therapeutic Recreation Service. Emphasis is on interpreting assessment data, writing measurable goals and objectives, implementing an actual program and documenting program results in terms currently used in human service settings.

Prerequisites: RPLS 272, RPLS 274, or with instructor permission.

RPLS 450 Therapeutic Recreation Techniques 3 credits

This course is designed to teach a wide variety of interventions and facilitation techniques used in therapeutic recreation programs to give the student knowledge, practice and ability in the implementation of leisure and recreation programs for persons with special needs.

RPLS 451 RPLS Across the Lifespan 3 credits

Students will study the recreation needs of various groups of people and learn the best practices for serving those needs. The emphasis will be on program planning guidelines appropriate for each group across the lifespan and for diverse groups.

RPLS 457W Transdisciplinary Research in Health-Related Fields 3 credits

This course will explore transdisciplinary research design with emphasis related to the areas of allied health and nursing sciences and disciplines. Basic overview of research methodologies commonly utilized in health sciences and approaches to transdisciplinary research will be explored through review of original research. Students will be required to produce and revise scientific writing with specific focus on inter/transdisciplinary studies. Team-based problem centered research questions will be developed and investigated using transdisciplinary methodology with current health-related issues.

RPLS 460 Sustainable Tourism 3 credits

This course explores aspects of sustainable tourism including conceptual background, planning, consensus building, ethical considerations, and implementation. Students will engage in experiential learning opportunities centered around the application of ideas and will better understand the benefits and drawbacks of sustainable tourism as a revenue-producing endeavor.

RPLS 465 Event Planning and Design 3 credits

This course introduces students to the concepts, principles, and the design involved in the event planning strategy; special event management; stakeholder development; budgets and finance; site selection; contracts, vendors, and marketing and promotions.

RPLS 466 Event Implementation and Evaluation 3 credits

Students will develop skills in the implementation and evaluation of special events in the recreation and parks profession through on-site delivery and analysis.

RPLS 471W Research Design in Recreation, Parks and Leisure Services 3 credits

This course guides the student through the survey process including the creation and implementation of a questionnaire. The data collected are then analyzed and a formal report is prepared. Computer skills are emphasized.

RPLS 473 Recreation Management II-Fiscal Resources 3 credits

This course investigates basic economic principles behind managing finances and budgets in recreation, sport and tourism settings. Particular attention will be applied to revenue generation, specifically via grant writing, and creating and managing budgets. Upper division prerequisites can be taken concurrently with instructor permission.

Prerequisites: RPLS 272, RPLS 373, or with instructor permission. Upper division prerequisites can be taken concurrently with instructor permission.

RPLS 475 Public Land Use Policies 3 credits

Traces the history of public lands in the United States, their acquisition and disposal. Congressional charges to executive agencies managing national lands and state and local government responsibilities for managing nonfederal public lands. Attention is given to international oceanic resources and how the international community will manage these resources.

RPLS 476 Advanced Leadership in RPLS 3 credits

An examination of advanced leadership theories, models, and techniques used by professionals in the RPLS field. Topics may include teamwork, conflict resolution, power and influence, and other related concepts to promote high-performing workplaces.

RPLS 477 Interprofessional Practices 1 credits

This course will explore interprofessional practices with emphasis related to the areas of allied health and nursing sciences and related disciplines. Students will learn how to interact with other disciplines. Students will be taught techniques to implement outcome-based interprofessional activities through project or community-based experiences.

RPLS 478 Multicultural Perspectives in Outdoor Recreation 3 credits

This course examines major topics of social science research aimed at learning the preferences, attitudes, behaviors, experiences and benefits of visitors to outdoor recreation areas.

RPLS 479 Field Techniques in Cultural and Natural Resource Management 3 credits

This course introduces students to some basic natural resource and visitor management techniques in outdoor recreation settings. Topics such as interpretation and environmental education, visitor management and ecosystem management are among those discussed.

RPLS 481 Park Planning 3 credits

Traces the history of the parks movement in the United States, selected legislation establishing parks and the enactment of funding legislation. The importance of public participation, planning and political strategies are stressed. Upper division prerequisites can be taken concurrently with instructor permission.

RPLS 482 Leisure and Older Adults 3 credits

Leisure as an integral aspect of successful aging is the focus of this course which includes: leisure in relation to physical, intellectual, social and psychological aspects of aging and successful leisure programming in community-based settings and in long term care.

RPLS 483 Personnel Leadership in RPLS 3 credits

This course examines leadership roles in and principles of human resources in recreation and park organizations to build and maintain an effective work force. A range of human resource topics and leadership theories are explored.

RPLS 485 Selected Topics 1-3 credits

RPLS 486 Minor Practicum 1-4 credits

Course work set through student/advisor agreement.

RPLS 489 Advancement of the Therapeutic Recreation Profession 3 credits

This course is designed to develop the student's ability to function as a member of the interdisciplinary treatment team and practice critical thinking, writing and oral skills related to treatment decisions, ethical issues, professional issues, and health care delivery systems.

Prerequisites: RPLS 272, RPLS 274, or with instructor permission.

RPLS 490 Workshop **2-4 credits**
RPLS 493 History and Philosophy in RPLS 3 credits
This course explores the philosophical and theoretical foundations that intersect and connect our multifaceted discipline of recreation, parks and leisure services. Specifically, the relationships between nature, conservation, wilderness, social equity, disability, commodification of leisure, and recreation experiences will be explored from the vantage point of a variety of influential scholars. Students will critically analyze the material and discuss potential implications for the profession. Upper division prerequisites can be taken concurrently with instructor permission.

RPLS 495 Senior Internship **9 credits**
The Practicum, which is one full semester of professional work experience, is completed at the end of the student's course work and requires 560 hours of service at a department approved agency where the student works full-time for 14 weeks. Written permission is required from the student's advisor, one semester in advance. All required RPLS courses must be completed with a C or better grade.

Prerequisites: All required RPLS courses completed with a 'C' or better.

RPLS 497 Internship **1-8 credits**
Course based on student/advisor agreement.

RPLS 498 Internship **1-8 credits**
Course based on student/advisor agreement.

RPLS 499 Individual Study **1-4 credits**
Course work set by student/advisor discussion.

Rehabilitation Counseling

REHB 110W Sensitivity to Disability **3 credits**
Promotes an understanding of the impact of physical and mental disabilities on people in their daily lives through in-class contacts and exercises with and about persons with disabilities. Diverse Cultures: Gold

Scandinavian Studies

SCAN 101 Elementary Norwegian I **4 credits**
An introduction to the basic skills of listening, speaking, reading, and writing coupled with culture.

SCAN 102 Elementary Norwegian II **4 credits**
An introduction to the basic skills of listening, speaking, reading, and writing coupled with culture.

Prerequisites: SCAN 101

SCAN 111 Elementary Swedish I **4 credits**
An introduction to the basic skills of listening, speaking, reading, and writing, coupled with cultural notes.

SCAN 112 Elementary Swedish II **4 credits**
An introduction to the basic skills of listening, speaking, reading, and writing, coupled with cultural notes.

Prerequisites: SCAN 111

SCAN 150W The Nordic Countries: Interdisciplinary Introduction **4 credits**
This course offers an interdisciplinary introduction to the Nordic countries (Norway, Sweden, Denmark, Finland, Iceland, Greenland, Faroe Islands); it will provide an overview of their geography, history, culture, society, and current political situation in comparison to the U.S. Diverse Cultures: Purple

SCAN 250 Selected Topics **1-4 credits**
Special topics courses in Scandinavian Studies will deal with a variety of topics regarding the history, literature, art, and culture of the Nordic countries. SCAN 250 courses are planned with the interests and needs of beginning students in mind; they offer broad introductions to the most important artefacts and/discourses in the respective field. Writing assignments offer opportunities to learn to discuss adequately and critically central issues and theories. The course may be repeated for credit.

SCAN 251W Scandinavian Cultures: The Sami **4 credits**
In this course, students will learn about the indigenous population of Scandinavia, the Sami. Students will investigate Sami traditions and cultural production along with the historical and contemporary sociopolitical standing of the Sami within the majority cultures of Scandinavia. Diverse Cultures: Purple

SCAN 280W Parallel Worlds: Exploring Cultures & Symbols **4 credits**
This course explores a wide range of cultural topics such as race, gender, human rights, social conflict, mythology, imaginary worlds, etc. Topics vary every semester and will be explored from a global perspective involving at least 4 cultures (e.g., Dakota, German, Francophone, Scandinavian, Hispanic, Lusophone, etc.). The course is taught in English through the lens of literary and cultural criticism with a focus on Scandinavian studies and exposes students to international and diverse points of view that prepare them to be global citizens. Diverse Cultures: Purple

SCAN 292 Intermediate Norwegian I **4 credits**
Development of reading and listening skills, oral and writing practice within a cultural context. To be arranged with instructor prior to registration.

Prerequisites: SCAN 102 or equivalent.

SCAN 293 Intermediate Norwegian II **4 credits**
Development of reading and listening skills, oral and writing practice within a cultural context. To be arranged with instructor prior to registration.

Prerequisites: SCAN 102 or equivalent

SCAN 294 Intermediate Swedish I **1-4 credits**
Development of reading and listening skills, oral and writing practice within a cultural context. To be arranged with instructor prior to registration.

Prerequisites: SCAN 112 or equivalent

SCAN 295 Intermediate Swedish II **1-4 credits**
Development of reading and listening skills, oral and writing practice within a cultural context. To be arranged with instructor prior to registration.

Prerequisites: SCAN 112 or equivalent

SCAN 299 Individual Study	1-4 credits
SCAN 350 Vikings & Norse Mythology	4 credits
This course is designed to provide an overview of the Viking Age and Norse mythology. Students will begin by learning about the sources that provide scholars with information about the Vikings, such as archaeological finds, Icelandic sagas, place names, historical annals, and other written texts. Students will then explore the daily lives of the Vikings in their homelands, their religious beliefs, their expansion to other lands, and what led to the end of the Viking Age.	
SCAN 450 Special Topics	1-4 credits
Special topics courses in Scandinavian Studies will deal with a variety of topics regarding the history, literature, art, and culture of the Nordic countries. SCAN 450 courses are planned with the interests and needs of more advanced students in mind; they build on and expand upon clearly defined methods and critical approaches which the students will explore both in class discussions and writing assignments. The course may be repeated for credit.	
SCAN 451 Scandinavian Crime Fiction	4 credits
In this course, students will read about crime and deviance in Scandinavia and will develop an understanding of how a culture conceptualizes its ethico-political struggles through literature. Diverse Cultures: Purple	
SCAN 452 Nordic Explorers	4 credits
This course focuses on narratives by and about explorers from the Nordic countries. Scandinavian explorers attempted to navigate the Northwest and Northeast Passages, reach the North and South Poles, traverse the Greenland icecap and the North American Arctic, and cross the South Pacific Ocean. They traveled by ship, by dogsled, by balloon, by airship, by airplane, by foot and on skis. Their narratives describing cross-cultural encounters, the natural environment, and innovation are valuable historical primary sources. A variety of texts, including memoirs, travelogues, and biographies address themes of perseverance, teamwork, isolation, silence, extreme cold, and the struggle for survival.	
SCAN 460 Topics in Scandinavian Film	4 credits
Revolving topics in Scandinavian Film. Students will explore issues of cultural and historical importance as presented through the medium of film. Written assignments and exams allow students to practice and display analytical and interpretive techniques. May be repeated for credit.	
SCAN 490 Major Project in Scandinavian Studies	3 credits
Individual project demonstrating ability to synthesize experience in interdisciplinary major, drawing together different areas of study focusing on specific topic, problem or concern and demonstrating ability to use a Scandinavian language. Approval of Scandinavian Studies program director required.	
Prerequisites: Admission to college as Scandinavian Studies Major.	
SCAN 492 Minor Project in Scandinavian Studies	1 credit
Individual project demonstrating ability to synthesize experience in interdisciplinary minor, drawing together different areas of study focusing on specific topic, problem or concern. Approval of the Scandinavian Studies program director required.	
SCAN 499 Individual Study	1-4 credits
Advanced study of works by selected Swedish or Norwegian authors.	
Prerequisites: SCAN 299-03 or SCAN 299-05	

Social Studies

SOST 200 Introduction to Social Studies Teaching	2 credits
Acquaints students majoring in social studies (teaching) with the social studies major and fundamental ideas that will help students integrate what they are learning in social sciences and history within the context of secondary social studies classroom.	
SOST 222 Selected Topics	1-4 credits
Designed to provide students the opportunity to explore a variety of topics related to social studies. Fall, Spring	
SOST 299 Individual Study	1-6 credits
SOST 450 Teaching Social Studies Secondary School	4 credits
Organization and presentation of social studies in secondary schools. Preparation of units for teaching purposes, examination of materials useful to the social studies teacher. Application of national and state standards to teaching social studies.	
Prerequisites: Concurrently with KSP 440	
SOST 485 Topics	1-6 credits
Designed to provide students the opportunity to explore a variety of topics related to social studies.	
SOST 491 In-Service	1-6 credits
Designed to provide students the opportunity to integrate academic learning with professional practice.	
SOST 499 Individual Study	1-8 credits

Social Work

SOWK 212 Introduction to Social Work	4 credits
An introduction to social work as a profession including the history of the profession, professional behaviors, values and Codes of Ethics, fields of practice, roles and tasks, and core theories and social work skills required for generalist social work practice. Students will develop skills in critical thinking, professional communication and behaviors, demonstrate self-awareness as they prepare to work in a diverse society, and apply values, ethics, and theories through group-based projects. Students are provided with information about the BSSW curriculum.	
SOWK 215 Introduction to Social Welfare Services	4 credits
The objective of this course is to explore social welfare as a social institution. Consideration will be given to formal and informal efforts to meet common social needs of diverse populations. This course emphasizes social challenges and impact of oppression facing American society and the program and policy prescriptions designed to minimize or eliminate these problems. Diverse Cultures: Purple	
SOWK 215W Introduction to Social Welfare Services	4 credits
The objective of this course is to explore social welfare as a social institution. Consideration will be given to formal and informal efforts to meet common social needs of diverse populations. This course emphasizes social challenges and impact of oppression facing American society and the program and policy prescriptions designed to minimize or eliminate these problems. Diverse Cultures: Purple	

SOWK 255 Global Responses to Human Need 3 credits
This course exposes students to some of the major realities of life among the poor and socially deprived in all parts of the world, primarily developing countries. Students will confront conditions that impede development and keep people locked into poverty and despair, and will discuss how a person who sees her/himself as a global citizen can act in tangible ways to make that "citizenship" more meaningful. Diverse Cultures: Purple

SOWK 291 Exploratory Studies 1-3 credits
Under faculty mentorship, students can pursue subjects of individual interest related to social work and social welfare.

SOWK 310 Human Behavior in the Social Environment 4 credits
Applies theoretical frameworks for assessing and organizing knowledge of human behavior and the social environment in conjunction with social systems, to understand individual, family, group, organizational, and community systems. Attention is paid to human diversity, discrimination, and oppression.

Prerequisites: SOWK 212 AND SOWK 215 OR SOWK 215W

SOWK 310W Human Behavior in the Social Environment 4 credits
Applies theoretical frameworks for assessing and organizing knowledge of human behavior and the social environment in conjunction with social systems, to understand individual, family, group, organizational, and community systems. Attention is paid to human diversity, discrimination, and oppression.

Prerequisites: SOWK 212 AND SOWK 215 OR SOWK 215W

SOWK 315 Junior Field Experience 4 credits
Beginning level supervised field experience with a social service agency. Students complete 120 hours of observation and agency service and attend a seminar which integrates the field experience and social work values, knowledge and practice skills. Application required during the semester before registration.

Prerequisites: SOWK 212. Select one course from SOWK 215 or SOWK 215W

SOWK 316 Professional Skill Development in Social Work 4 credits
This course provides opportunities for students to learn SOWK professional skills and behaviors, including professional communication, critical thinking, problem-solving, self-reflections, and professional presentation. The course provides opportunities to examine personal values and biases when considering the practice of social work in a diverse world. In addition, the course provides opportunities to learn about local social service agencies and offers students the skills needed to develop their sense of who they are and what they bring to the social work profession.

Prerequisites: SOWK 212, SOWK 215

SOWK 410 Social Welfare Policy 4 credits
Exploration of the interrelatedness of social services, social policy formulation and analysis, and generalist social work practice. Presentation of contemporary social issues and social welfare policies, the introduction of a framework for policy analysis, and an overview of policy, practice, advocacy and action skills. Critical analysis of issues and policy from a social work perspective, drawing from the values and ethics of the profession, with examination of how issues differentially impact groups within our diverse society.

Prerequisites: SOWK 212, SOWK 310. Select one course from SOWK 215 or SOWK 215W.

SOWK 415 Child-Family Welfare Services 3 credits
This course provides an overview of social services that support the well-being of children and families in a diverse society. Students, regardless of disciplinary affiliation, identify personal and professional values, develop a working knowledge of the theories that inform practice with children and families, and understand the roles and legal responsibilities of child welfare workers and professionals from multiple disciplines in the delivery of child welfare services.

SOWK 417 Co-morbidity of Mental Health & Substance Use Disorders in Social Work 3 credits
Co-morbid substance abuse and mental health disorders will be encountered by social workers in all areas of practice. Current research on dual diagnosis indicates integrated treatment of substance misuse and mental illness is the most effective approach to treatment. This course will provide an understanding of the intersection of multiple diagnoses, and enable social worker professionals to effectively treat multiple diagnoses in their area of practice. This course examines the interaction of addictive and other mental health disorders. Particular focus is placed on case-conceptualization, assessment, and intervention with multiply diagnosed clients in specific populations.

SOWK 419 Social Work and Aging 3 credits
Service delivery issues and social work practice with older persons, their families and communities.

SOWK 422 Social Work and Chemical Dependency 3 credits
This course is designed to provide upper level (junior and senior) undergraduate social work students with a comprehensive introduction to the epidemiology (scientific study of disease), etiology (cause of disease), history, policy, and treatment modalities of substance abuse from a person-in-environment and systems theory social work perspective.

SOWK 425 Social Work in Health Care Setting 3 credits
Service delivery issues and skills for working in hospitals, nursing homes, and community programs.

SOWK 427 Social Work Response to Intimate Partner Violence 3 credits
Course provides an overview of intimate partner violence from a theoretical and evidence-based, social work perspective. Students learn about intervention strategies from direct practice to advocacy and policy change. Multiple systems are explored. The intersection of gender, class, sexual orientation, age, and culture with intimate partner violence is covered.

SOWK 430 Social Work in the School Setting 3 credits
Service delivery issues, knowledge and skills for providing social services within school settings.

SOWK 432 Social Work and Disabilities 3 credits
Course focuses on service delivery issues and skills, using a strengths-based, family systems, and empowerment approach for working with individuals with developmental and other disabilities and their families across the life span. Students hoping to do a practicum in a disability services setting should complete this course prior to beginning the practicum.

SOWK 435 Applied Social Work Research **4 credits**
Explores research issues and techniques, needs assessments, and program and practice evaluations. In addition, there is a lab designed to supplement class discussions and to assist students in understanding some of the technical details and specific skills associated with conducting research and writing a research proposal. The lab enhances skills in developing questionnaires, reviewing previous studies, using American Psychological Association (APA) citations and data analysis using SPSS. Another Statistics course may meet the course prerequisite with approval of the BSSW Program Advisor.

Prerequisites: Select one course from STAT 154, PSYC 201, SPC 202, ECON 207, HLTH 475. Or other statistics course as approved by BSSW Program Advisor.

SOWK 441 Generalist Social Work Practice **4 credits**
Overview of generalist social work practice including assessment and intervention methodology and strategies; social work with diverse populations; ethical issues/dilemmas; importance of social work research. Admission to the BSSW Program/Major required. Permission to register given by BSSW Program.

Prerequisites: Admission to the BSSW Program/major. Permission to register given by BSSW Program.

SOWK 443 Social Work Interviewing and Counseling Skills **4 credits**
Intervention skills for working with individuals, families, and groups. Permission to register given by BSSW Program.

Prerequisites: SOWK 441. Permission to register given by BSSW Program.

SOWK 446 Organizations and Community Practice **4 credits**
This course prepares students for direct and indirect macro generalist social work practice in organizations and communities. Students will learn: 1) to recognize characteristics and assets of organizations and communities, 2) to identify and respond to changing community and organizational needs, and 3) strategies for planned change process in organizations and communities. Emphasis is placed on engaging, assessment, intervening and evaluating consumer services across mezzo and macro systems through the process of participating in task-oriented groups. Permission to register given by BSSW Program.

Prerequisites: SOWK 441. Permission to register given by BSSW Program.

SOWK 450 Integrative Seminar **4 credits**
Integration of senior field practicum with academic content and concepts. Serves as the capstone experience. Taken with SOWK 455.

Prerequisites: SOWK Foundation, Practice Sequence, and permission

Corequisites: SOWK 455

SOWK 455 Social Work Practicum **8 credits**
Culminating practicum experience with 32 hour per week placement in a social service setting with supervision provided by a degreed social worker. Taken with SOWK 450.

Prerequisites: SOWK Foundation, Practice Sequence, and permission

Corequisites: SOWK 450

SOWK 485 Selected Topics **1-6 credits**
Topics announced when offered

SOWK 490 Workshop **1-3 credits**
SOWK 492 Honors Reading **1-3 credits**
SOWK 495 Social Work Honors Paper **1-3 credits**
This elective is for those students who desire to complete an advanced writing assignment in preparation for employment or graduate education.

SOWK 497 Internship: Social Work **1-10 credits**
Additional field experience in approved social agency.

SOWK 499 Individual Study **1-6 credits**
Under faculty mentorship, students may pursue in-depth library or field research on topics of their choice.

Sociology

SOC 101 Introduction to Sociology **4 credits**
Overview of the structure and processes of social life; impact of social forces on individuals and groups; interdependence of society and the individual; social significance of social class, race, ethnicity, gender, and sexuality; emphasis on critical analysis of social inequalities and injustice. Diverse Cultures: Purple

SOC 150 Social Problems **4 credits**
A critical description and analysis of selected social problems, as well as the "social problems process" through which problems are socially constructed and defined. A social constructionist approach examines how people and social systems define and react to social problems. Emphasis on the sociological perspective, critical thinking, roots of social inequality, and exploration of solutions and alternatives to existing social problems. Diverse Cultures: Purple

SOC 202 Introductory Social Statistics **4 credits**
Develop knowledge and application of statistical concepts and methods to facilitate research in social sciences disciplines. Students learn to work with quantitative databases obtained from census, social surveys, and experiments. Develop data analysis skills and use of statistical software programs. Practice data interpretations and statistical decision-making as used in everyday government, non-profit/for-profit, healthcare, academic and research organizations.

SOC 208 Families in Society **4 credits**
Relationships, marriage, and families are studied from a sociological perspective. Focuses on the connections between society, culture, social institutions, families, and individuals. Particular attention is given to the ways that race, ethnicity, social class, gender, and sexuality shape family patterns and dynamics. Diverse Cultures: Purple

SOC 209 Sociology of Human Sexualities **4 credits**
Explores the social construction of sex and sexuality. Key topics include the social, cultural, and historical construction of sexual identities, sexual bodies, sexual politics, sexual socialization, and sexual technologies, in the context of the sexual activities, beliefs, and morals of people. Diverse Cultures: Purple

SOC 214W Animals and Society **4 credits**
This course examines the role of animals in society and the social relationships between humans and other animals. Students will explore how culture and society shape the ways other animals are integrated and treated in our families, schools, economy, legal system, and other social institutions. Through dialogue and writing students will identify their own perspectives on nonhuman animals and our relationships to them.

SOC 241 Social Deviance 4 credits This course explores sociological understandings of deviance including: an overview of major sociological theories of deviance; examinations of specific examples of high consensus criminal deviance (i.e., murder, rape, street crime, white collar crime), lifestyle deviance (i.e., alcohol and drug abuse, sex work), and status deviance (i.e., mental illness, obesity and eating disorders, LGBTQ identities). This course will emphasize how social constructions of deviance reinforce inequalities in society.	SOC 402 Medical Sociology 4 credits Introduces students to social determinants of health and illnesses; health inequalities; and issues related to social class, race, gender, and ethnicity. Covers standards and practices in the healthcare services, professions, and institutions and their impacts. The course is designed to provide social and cultural competencies among students who choose the career path to becoming medical, health and human services professionals.
SOC 255 Juvenile Delinquency 4 credits A critical consideration of how conceptions of juvenile delinquency are socially constructed, emphasis on interactional and institutional contexts in which delinquent behavior takes place, critique of current theories on delinquency, and the juvenile justice response to delinquency.	SOC 404 Sociology of Aging 4 credits Aging and ageism in the US and globally from a sociological perspective; emphasis on how age intersects with race, social class, gender, and sexuality. Diverse Cultures: Purple
SOC 285 Selected Topics in Sociology 4 credits Topics vary as announced in class schedule. May be retaken for credit if topic varies.	SOC 405 Sociology of Death 4 credits This course introduces students to thanatology, which is the study of the human response to death, dying, and bereavement within socio-cultural contexts. Topics include the history of death and dying practices and conceptions, current trends of death in our society, cross cultural beliefs and practices surrounding death, functions of death rituals, grief, the dying process, and debates about euthanasia and death with dignity legislation.
SOC 285W Selected Topics in Sociology 4 credits Topics vary as announced in class schedule. May be retaken for credit if topic varies.	SOC 407 Population Dynamics 4 credits The course will acquaint students with the dynamic forces operating in the field of population and development. Includes an introduction to basic theories and research techniques of population analysis, with coverage of national and global population patterns and their social determinants. In addition, the understanding of processes of fertility, mortality and migration. The causes and consequences of population growth (or decline) are discussed with special attention to resource depletion, food shortages, labor and others.
SOC 301W Social Research I 4 credits This course reviews the fundamentals of social research methods. Students will learn about process of designing research studies and key methods of social science research; they will develop skills to read social science research articles and understand research findings. Students will also develop and practice research skills.	SOC 409 Family Violence 4 credits This course explores various forms of family violence including dating violence, spouse abuse, and child abuse. There is particular emphases on power dynamics in families and in the broader culture and evaluations of current policies related to family violence.
SOC 307 Sex & Gender in Contemporary Society 4 credits This course describes and analyzes sex/gender systems, interpersonal power, language and communication, the role of gender in social institutions such as the family, work, and politics, and the role of social movements in creating change in gender relations.	SOC 417 Program Administration 4 credits This higher-level course offers knowledge, strategies, tools-techniques, and leadership skills to effectively manage human and social services programs. Learn sociological theories of organizations and behavior to manage programs and organizations with different structures and functions. Apply learned skills to current and/or future professional positions as, e.g., project managers, organizational leaders and CEOs, or as private contractors to federal and state government, local community, and/or international organizations.
SOC 325 Sociology of Popular Culture 4 credits This course examines the sociological significance of popular culture and focuses on how popularized aspects of social life are produced, consumed, and experienced by members of society. Students will explore everyday rituals, collective behaviors, and cultural constructions that shape both macro and micro social interactions. Includes discussion of: celebrity culture, music, television and advertising, dating and romance, gendered inequalities, spaces and places, and the social and cultural significance of everyday practices.	SOC 420 Identity Work in Women's Reentry Experiences 4 credits Applies sociological theories of identity to the experiences of women being released from prison. Taught at the women's prison in Shakopee, Minnesota and integrates Minnesota State University, Mankato, students with students drawn from the educational program within the women's prison in Shakopee. Diverse Cultures: Gold
SOC 351 Social Psychology 4 credits This course explores theories of sociological social psychology, especially emphasizing the creation of reality, self and identity, emotions, social order, and how inequalities are produced and experienced in everyday life.	SOC 425 Social Movements 4 credits The course will explore how collective action creates social change by examining both academic and activist orientations toward social movements, with a focus on US movements. Students will learn about social movement histories, explore social movement theories, and examine how people achieve success in education, outreach, and activism efforts.
SOC 360 Indigenous Peoples and Environmental Struggles 4 credits In this class, you will learn about indigenous relationships with the environment and how interactions with Europeans and other invading groups have altered this interaction with nature. We will begin with an understanding of how indigenous groups view nature differently than Western societies and move to the general interaction of societies with the environment. By looking at our general interaction with the environment, we will be able to discuss the similarities and differences between the indigenous and sociological critiques of contemporary environmental interactions. Same course as AIS 360. Credit allowed for only one of these courses. Diverse Cultures: Purple	

SOC 430 Sociology of Globalization **4 credits**

In the media, the term "globalization" has been used to characterize the changes taking place in our world today, but this class will take a critical look at the term globalization and the increasing influence it has on the daily lives of people around the world. The course will examine how the single-minded focus on the growth of profit has transformed the world and affects the life circumstances of diverse populations. At the conclusion of the course, the students will have a better understanding of what has been called "globalization" and the forces that shape their lives. Diverse Cultures: Purple

SOC 442 Criminology **4 credits**

This course will cover theoretical perspectives on crime and their assumptions, empirical research on crime, myths concerning crime, and critiques of the criminal justice system. Students will apply a social justice lens to the study of crime, the criminal justice system and the unequal treatment of marginalized groups.

SOC 446 Race, Culture & Ethnicity **4 credits**

The study of the principles and processes that account for the patterns of relations among racial and ethnic groups in the context of the U.S. society. It is designed to provide students with the essential background that will allow them to analyze social structures based on different dimensions such as class, gender, sexuality, and others. In any one of these dimensions or at the cross-section of two or more we find dominant (or majority) groups, which have better access to institutional resources, and subordinate (or minority) groups, which are kept on the margins and powerless. Diverse Cultures: Purple

Prerequisites: SOC 101

SOC 458 Sociological Theory **4 credits**

Sociological Theory focuses on the application of theory to understanding the causes of contemporary and historical social problems. The course will introduce students to the connection between theory and research, the contribution of theory to understanding people's personal experience, and the role of theory to explain social struggle. Students will be exposed to some of the most notable social theorists, including Marx, Weber, and Durkheim. Students will also learn diverse theoretical perspectives from African-American, Latina/Latino, Asian, and Indigenous social theorists, who have been historically excluded.

SOC 460 Environmental Sociology **4 credits**

The environment tends to be taken for granted, and it is often assumed to be separate from society. People are an inseparable part of nature and must interact with it if they are to survive. This course will encourage students to contemplate their relationship with nature over time and cross-culturally. The course will address a number of contemporary concerns regarding the environment, such as food production, toxins in the environment, natural resource extraction, and climate change. We shall also contemplate solutions to the current environmental issues facing society now and into the future. Diverse Cultures: Purple

SOC 461 Urban Sociology **4 credits**

A survey of sociological theory and research on the ecology, demography, and social organization of the urban community. Presents a sociological interpretation of the development of urban society and how the process of urbanization affects the basic societal institutions and individual behavior. Focus on the development of global cities and the global urban process and its determinants. Diverse Cultures: Purple

SOC 463 Social Stratification **4 credits**

Within the pluralistic culture of the United States, sociology promotes knowledge about multi-cultural groups. With rapid globalization, sociology reveals how the sociological imagination extends beyond the United States. The principle goal of the course is to help students to develop a broader, more informed understanding of the past and present social forces that have created and sustained a global society composed of various class, racial and ethnic groups. The goal of this course is for students to develop an appreciation of the ways in which various theoretical perspectives lead to different understandings of the structures and practices of group relations. Diverse Cultures: Purple

SOC 466 Program Planning and Evaluation **4 credits**

Nonprofit, human services, and many other organizations develop programs and interventions to help people, the environment, animals, and the community. This course will explore the theoretical and practical aspects of how to plan and evaluate these programs using effective, evidence-based methods. Students will learn the basics of how to design and evaluate a program and will also have an opportunity to practice developing aspects of an actual program.

SOC 469 Survey Research **4 credits**

Seminar and workshop on the principles and techniques of survey research, including but not limited to understanding survey research and designing questionnaires; students will work directly on a survey research project and present project findings.

Prerequisite: SOC 301W or similar research methods course with instructor permission.

SOC 472 Drugs and Society **4 credits**

A sociological perspective to examine the history of drug use and abuse in the United States. This may include a symbolic interactionist lens regarding symbolic meanings of drugs in society. Multicultural issues in drug abuse, international drug distribution networks, prevention efforts, and legal issues will be discussed, as well as inequalities in how drug laws are applied.

SOC 479 Sociological Ethnography **4 credits**

Examination of ethnographic methodologies in sociology with emphasis on analytic, performance, and autoethnography. Exploration of ethics in ethnography, visual sociology, and first-hand experience in both crafting and presenting ethnographic works.

SOC 480 Qualitative Methods **4 credits**

Seminar and workshop on the principles and techniques of qualitative research, including but not limited to interviews and participant observation; students design and conduct original qualitative research projects, write and present analyses. Prerequisite: SOC 301W or similar research methods course with instructor permission.

SOC 482 Social Change **4 credits**

Analysis of social forces that impact social change in the United States and globally. Examines the interaction between structural and cultural forces in the understanding of societal changes. Explores the global economic impact and the implications for world-wide changes. Analysis of the process of development and globalization and impacts on nations and populations across the globe.

SOC 483 Contemporary Families **4 credits**

Upper-division seminar focused on major theories and findings in contemporary family sociology; emphasis on reading, interpreting, and critically engaging with scholarly research on families, including dating and cohabitation, marriage, divorce, and parenting.

SOC 484 Sociology of Religion **4 credits**
Analysis of the structures, functions, and origins of religion, its relationship to other social institutions, and its role in modern secular society. Examines processes of individual religiosity and explores current religious movements and trends. Explores world religions to enhance greater cultural understanding.

SOC 485 Selected Topics **2-6 credits**
Topics vary as announced in class schedule. May be retaken for credit if topic varies.

SOC 490 Workshop **1-3 credits**
Workshop topics vary as announced in class schedule. These workshops will be based on skill-building and career connections for sociology majors. May be retaken for credit.

SOC 492 Honors Reading **1 credit**
For Honors students only.

SOC 493 Community Engaged Research **4 credits**
This course will focus on ways that sociological concepts and research skills can be applied in practice settings to address human concerns and promote social justice. Students learn how sociological skills can be used to identify, investigate, and implement solutions to problems of social organization, social process, and social change. Through the course of the semester students will engage in experiential and/or project-based learning, and collaborate in identifying and executing research in service of addressing a community problem or supporting a community organization.

Prerequisites: SOC 301W or equivalent; Senior Standing.

SOC 497 Internship: Sociology **1-12 credits**
The internship in sociology is designed to provide opportunity to apply classroom learning, to practice and enhance skills, to experience professional socialization, and to explore a career. It also serves as a vehicle for the student to become more aware of personal strengths and identify areas in which further growth is needed.

Prerequisites: Consent

SOC 499 Individual Study **1-6 credits**
A maximum of six credits is applicable toward a single major in the department; three credits toward a minor.

Prerequisites: Consent

Software Engineering

SE 300 Software Engineering Academy Project **3 credits**
Students participate in their first hands-on industry software development project. Every major element of the typical project lifecycle will be experienced, based on live project features wherever possible. This course prepares students for their first external work-based learning experience in industry or on an industry project. Emphasis is placed on diversity, equity, and inclusion for both technical and professional best practices. Requires admission to program.

Prerequisites: Admission to the program.

SE 301 (Core): Introduction to Software Engineering **2 credits**
Students are introduced to the main elements of software engineering including requirements analysis, software design, software construction, project management, and best practices for project management and software systems engineering with an emphasis on diversity, equity, and inclusion. This course prepares students for their first work-based learning experiences in industry or on an industry project. Requires admission to the program.

Prerequisites: Admission to the program.

SE 302 (Core): Introduction to Software Quality and Testing **2 credits**
Students are introduced to the main elements of software engineering that deal with a) the influence of external bad actors, and b) finding and fixing problems ("bugs") in software. The course covers software testing, software quality management, and software security. It prepares students for their first work-based learning experiences in industry or on an industry project, with an emphasis on best practices in diversity, equity, and inclusion.

Prerequisites: Requires admission to the program.

SE 303 (Core): Introduction to Context-aware Software Practices **2 credits**
Students are introduced to the aspects of software engineering practice that are heavily influenced by the technical, business, and social contexts in which software systems operate. These include software sustainment, software process and lifecycle concerns, best practices in software and systems engineering, and software safety. This course prepares students for their first work-based learning experiences in industry or on an industry project, with an emphasis on diversity, equity, inclusion, and belonging.

Prerequisites: Requires admission to the program.

SE 304 Preparation for Self-directed Study in Software Engineering **2 credits**
Principles of self-directed learning are used to scope and prepare for future study of software engineering topics, especially as they are used in industry. Principles include goal setting, time management, planning, learning strategies, meta-cognition, self-regulation, and evaluation of personal learning. A diversity, equity, inclusion, and belonging lens is applied throughout. Requires admission to the program.

Prerequisites: Admission to the program.

SE 311W SE Professionalism 1 **2 credits**
Students learn and develop the elements of professionalism while working on software project teams in industry or on projects with industry clients. Topics include leadership, metacognition, teamwork, written and oral communication, ethics, diversity, equity, inclusion, belonging, and professional and personal responsibility.

Prerequisites: SE 300

SE 312W SE Professionalism 1 **2 credits**
Students further learn and develop the elements of professionalism while working on software project teams in industry or on projects with industry clients. Topics include leadership, metacognition, teamwork, written and oral communication, ethics, diversity, equity, inclusion, belonging, and professional and personal responsibility.

Prerequisites: SE 311W, SE 391

SE 391 Software Engineering Project 1 **4 credits**

Students learn and practice the essential elements of software engineering while working on a software project team in industry or on a project with an industry client. Topics include software requirements, design, construction, testing and quality, sustainment, security, and systems engineering, and project management. A diversity, equity, inclusion, and belonging lens is applied to both technical and professional course content. Course must be taken concurrently with SE 311W.

Prerequisites: SE 300, SE 301, SE 303

Corequisites: SE 311W

SE 392 Software Engineering Project 2 **4 credits**

Further learning and practice of the main elements of software engineering while working on software project teams in industry or on projects with industry clients. Topics include software requirements, design, construction, testing and quality, sustainment, security, and systems engineering, and project management. A diversity, equity, inclusion, and belonging lens is applied to both technical and professional course content. Course must be taken concurrently with SE 312W.

Prerequisites: SE 311W, SE 391

Corequisites: SE 312W

SE 398 CPT: Co-Operative Experience **0 credits**

Curricular Practical Training (CPT): Co-Operative Experience is a zero-credit full-time practical training experience for one summer and/or one adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information. Requires admission to the program; at least 60 total credits of required courses for graduation earned; in good standing in the SE program; instructor permission; co-op contract approved by program leadership; other pre-requisites may also apply.

Prerequisites: CIS 223. Admission to the program; at least 60 total credits of required courses for graduation earned; in good standing in the SE program; instructor permission; co-op contract approved by program leadership; other pre-requisites may also apply.

SE 401 Topics in Software Requirements **2 credits**

Students learn the practices of software requirements work in depth through hands-on experience. Topics include elicitation and analysis techniques, best practices for gathering and documentation, and methods for verification and validation. Emphasis on addressing diversity, equity, and inclusion is applied throughout.

Prerequisites: SE 300, SE 301, SE 303

SE 402 Topics in Software Testing, Measurement, and Quality **2 credits**

Students learn the practices of software testing, measurement, and quality in depth through hands-on work. This course covers the aspects of software engineering that deal with a) the influence of external bad actors, and b) finding and fixing problems (“bugs”) in software. Topics include types of software testing, methods and mathematics for quality control, and software process measurement and reporting. A diversity, equity, and inclusion lens is applied throughout.

Prerequisites: SE 300 SE 301 SE 302, SE 303

SE 403 Topics in Software Architecture and Design **2 credits**

Students learn software architecture, design, and related topics in depth through hands-on practice. Best practices in design, organization, documentation, communication, and preparation for manufacturing and distribution of software are explored. A diversity, equity, and inclusion lens is applied throughout.

Prerequisites: SE 300, SE 301, SE 303

SE 404 Topics in Software Process, Life Cycle, and Sustainability **2 credits**

Students learn best practices in software process, life cycle, and sustainability management through hands-on experience. Product and systems concerns are addressed in the context of real operational environments for software systems. Topics include software maintenance, project management, business ecosystems for software, and contracts. A diversity, equity, inclusion, and belonging lens is applied throughout.

Prerequisites: SE 300, SE 301, SE 303

SE 411W SE Professionalism 3 **2 credits**

Students further learn and develop the elements of professionalism while interacting regularly with clients, software developers, other team members, managers, and administrators in an industry setting. Further development and implementation of skills related to leadership, metacognition, teamwork, written and oral communication, ethics, diversity, equity, inclusion, belonging, and professional and personal responsibility.

Prerequisites: SE 312W, SE 392

SE 412W SE Professionalism 4 **2 credits**

Students further learn and develop the elements of professionalism while interacting regularly with clients, software developers, other team members, managers, and administrators in an industry setting. Further development and implementation of skills related to leadership, metacognition, teamwork, written and oral communication, ethics, and professional and personal responsibility in an industry context with reflection on educational growth.

Prerequisites: SE 411W, SE 491

SE 480 Topics in Software and Systems Engineering **2 credits**

Students learn the practice of software and systems engineering in depth through hands-on work. Topics include APIs, robust construction practices, cloud-based programming environments, large scale systems management, multi-disciplinary team management, and software safety. Emphasis on addressing diversity, equity, and inclusion is applied throughout.

Prerequisites: SE 300, SE 301, SE 303

SE 491 Software Engineering Capstone 1 **4 credits**
Further learning and practice of the main elements of software engineering while working on software project teams in industry or on projects with industry clients. Topics include software requirements, design, construction, testing and quality, sustainment, security, and systems engineering, and project management. A diversity, equity, inclusion, and belonging lens is applied to both technical and professional course content. Course must be taken concurrently with SE 411W. Senior standing in SE program and at least 12 credits earned in SE technical cores and electives.

Prerequisites: SE 312W, SE 392. Senior standing in SE program and at least 12 credits earned in SE technical cores and electives.

Corequisites: SE 411W

SE 492 Software Engineering Capstone 2 **4 credits**
Students further learn and develop the essential elements of software engineering while working on software project teams in industry or on projects with industry clients. Further development and rounding out of experience with software requirements, design, construction, testing and quality, sustainment, security, and systems engineering, and project management. A diversity, equity, inclusion, and belonging lens is applied to both technical and professional course content. Course must be taken concurrently with SE 412W. Senior standing in SE program and at least 12 credits earned in SE technical cores and electives.

Prerequisites: SE 411W, SE 491

Corequisites: SE 412W

SE 495 Software Engineering Seminar **1 credit**
Students learn about software engineering practice through seminars with faculty, graduate students, undergraduate students admitted to the SE major, visiting researchers, and industry members. SE students are assisted in their development as learners and professional citizens through workshops. A diversity, equity, inclusion, and belonging lens is applied throughout. This course is repeated by upper-division Software Engineering students every semester. Requires admission to the program.

Prerequisites: Admission to the program.

SE 498W Senior Thesis **4 credits**
Advanced study and research in the field of software engineering required. Topic of the senior thesis determined jointly by the student and the faculty advisor. Deliverables include written thesis and formal oral presentation. Elective. Cannot be repeated for credit. Senior standing in the program and at least 12 credits earned in technical cores and electives.

Prerequisites: SE 312W, SE 392. Senior standing in the program and at least 12 credits earned in technical cores and electives.

Spanish

SPAN 101 Elementary Spanish I **4 credits**
An introduction to the basic language skills of listening, speaking, reading and writing; presentation of condensed cultural notes.

SPAN 102 Elementary Spanish II **4 credits**
An introduction to the basic language skills of listening, speaking, reading and writing; presentation of condensed cultural notes.

Prerequisites: SPAN 101 or equivalent

SPAN 193 Individual Study Abroad: Elementary Spanish I1-6 credits
Introductory work toward proficiency in reading, writing speaking and listening skills. Content varies. May be repeated for credit. Study for credit must be approved by the department prior to departure.

SPAN 194 Individual Study Abroad: Elementary Spanish I11-6 credits
Introductory work toward proficiency in reading, writing, speaking and listening skills. Content varies. May be repeated for credit. Study for credit must be approved by the department prior to departure.

SPAN 201 Intermediate Spanish I **4 credits**
A review of the fundamentals of grammar, practice in written and oral expression, development of listening and reading skills, brief cultural components.

Prerequisites: one year university level Spanish or equivalent

SPAN 202 Intermediate Spanish II **4 credits**
A review of the fundamentals of grammar, practice in written and oral expression, development of listening and reading skills, brief cultural components.

Prerequisites: one year university level Spanish or equivalent

SPAN 210W Composition and Conversation Workshop **4 credits**
Includes basic communication exchanges, common vocabulary and experiences. Emphasis is on improving written expression through compositions related to socio-cultural topics of the countries in which Spanish is the primary language.

SPAN 250 Spanish Through Latin Dancing **4 credits**
This course is an immersive and kinesthetic way to learn or review Spanish. Spanish is used as the language of instruction in order to teach students the basics to various types of Latin dancing, including salsa, bachata, and merengue. Students will learn about the history of each dance and will be able to identify each genre of music. Specific Spanish vocabulary covered includes lyrics to songs, names of dance steps, dancing commands, and phrases needed to participate in a Latin dance event in a Spanish-speaking country. Students will also learn about the cultural importance of dancing in different Spanish-speaking countries.

SPAN 256 Individual Study Abroad: Supervised Project **1-6 credits**
Topics will vary. May be repeated for credit.

SPAN 280W Parallel Worlds: Exploring Cultures & Symbols **4 credits**
This course explores a wide range of cultural topics such as race, gender, human rights, social conflict, mythology, imaginary worlds, etc. Topics vary every semester and will be explored from a global perspective involving at least 4 cultures (e.g., Dakota, German, Francophone, Scandinavian, Hispanic, Lusophone, etc.). The course is taught in English and exposes students to international and diverse points of view that prepare them to be global citizens.

SPAN 293 Individual Study Abroad: Intermediate Spanish I1-6 credits
Development of reading, writing, speaking and listening skills at the intermediate level. Content varies. May be repeated for credit. Study for credit must be approved by the department prior to departure. Pre: One year university level Spanish or equivalent

Prerequisites: One year university level Spanish or equivalent

SPAN 294 Individual Study Abroad: Intermediate**Spanish II****1-6 credits**

Development of reading, writing, speaking and listening skills at the intermediate level. Content varies. May be repeated for credit. Study for credit must be approved by the department prior to departure.

Prerequisites: One year university level Spanish or equivalent

SPAN 301 Topics in Language**1-4 credits**

Topics will vary and course may be repeated for credit. Language topics include pronunciation and intonation, advanced grammar, Spanish for the marketplace, etc. The focus is on advanced oral or written communication.

Prerequisites: Two years of university level Spanish or equivalent

SPAN 310 Conversation**1-4 credits**

Emphasis on development of oral communication skills and improvement in writing.

SPAN 311W Composition Workshop for Heritage/Bilingual Speakers**4 credits**

Develop writing and reading skills for academic and professional settings for students with intermediate high oral language proficiency who would like to develop their critical reading skills and improve their writing for academic and professional purposes. Practice of orthography, stylistics, compositional elements characteristic of writing in Spanish for a variety of cultural settings, etc. and development of communicative competence for a Spanish-speaking audience based on multicultural readings.

SPAN 350 Topics in Hispanic Cultures**4 credits**

A critical analysis of cultural and historical events that have shaped the Hispanic world from a transatlantic perspective. We explore the multiple cultures that are part of the Spanish, Latin American, and US regions and examine concepts such as Hispanic identity, colonial/postcolonial discourses, immigration, race, etc. This course is in Spanish.

Prerequisites: Two years of university-level Spanish or proof of equivalent proficiency.

SPAN 355 Spanish Cultures**1-4 credits**

Major cultural and historical aspects of Spain from ancient times to the present.

Prerequisites: Two years university level Spanish or equivalent

SPAN 356 Latin American Cultures**1-4 credits**

Major cultural and historical aspects of Latin America from pre-colonial times to the present.

Prerequisites: Two years university level Spanish or equivalent

SPAN 365 Selected Readings**1-4 credits**

Discussion and analysis of major themes and movements based on selected readings from representative authors from the Spanish speaking world.

Prerequisites: Two years university level Spanish or equivalent

SPAN 393 Individual Study Abroad: Advanced Spanish I**1-6 credits**

Increase proficiency of reading, writing, speaking and listening skills. Content varies. May be repeated for credit. Study for credit must be approved by the department prior to departure.

Prerequisites: Two years university level Spanish or equivalent

SPAN 394 Supervised Study Abroad: Advanced Spanish II**1-6 credits**

Emphasis is on reading, writing, speaking and listening skills. Content varies. May be repeated for credit. Study for credit must be approved by the department prior to departure.

Prerequisites: Two years university level Spanish or equivalent

SPAN 395 Individual Study Abroad: Readings in Hispanic Literature**1-6 credits**

An introduction to reading literature in Spanish. Discussion and analysis of representative works by major authors from the Spanish speaking world.

SPAN 396 Experiencing Diverse Cultures**1-3 credits**

This course will focus on acquisition of cultural, personal and universal dimensions of cultural learning that will lead to recognition and (appropriate) response to conditions of marginalized populations as they experience first-hand diverse cultures. Diverse Cultures: Gold

Prerequisites: SPAN 201, SPAN 202

SPAN 401 Topics in Linguistics**1-4 credits**

Topics may vary. Course may be repeated for credit. Discussion and analysis of Spanish linguistics (syntax, sociolinguistics, historical linguistics, translation theory and practice.)

Prerequisites: Completion of 4 credits of 300 level or equivalent

SPAN 402 Topics in Spanish Peninsular Literature**1-4 credits**

Topics vary: Spanish Literature from Medieval to Modern Times. May be repeated for credit.

Prerequisites: Completion of 4 credits of 300 level or equivalent

SPAN 403W Topics in Spanish American Literature**1-4 credits**

Topics vary: major writers from Spanish America; Spanish American novel; Spanish American poetry; Spanish American drama; Spanish American short story; romanticism, the Mexican novel. May be repeated for credit.

Prerequisites: Completion of 4 credits of 300 level or equivalent

SPAN 405 Topics in Hispanic Literatures**4 credits**

A critical analysis of Hispanic literature from the different regions of the Hispanic world (Spain, Latin America, US). We explore the multiple literary trends that are part of the Spanish-speaking regions and examine concepts such as Hispanic identity, colonial/postcolonial discourses, immigration, etc. through literary discourses. This course is in Spanish.

Prerequisites: Completion of 4 credits of 300 -level or equivalent proficiency level.

SPAN 407 Topics in Translation**1-4 credits**

Introduction to the theory and practice of translation. This course is targeted at Spanish students and language professionals interested in developing translation skills, as well as in finding out what is involved in becoming a professional translator.

SPAN 450 Spanish for the Professions**4 credits**

This course is targeted at language professionals including teachers, business professionals, health professionals, law enforcement professionals. The purpose is to improve overall oral proficiency and address communication issues and vocabulary associated with the students' field of expertise.

SPAN 492 Independent Study 1-3 credits
Variable topics.

Prerequisites: Completion of eight 300-level credits, or equivalent

SPAN 493 Individual Study Abroad: Topics in Language and Linguistics 1-6 credits

Topics will vary. May be repeated for credit. Study for credit must be approved by the department prior to departure.

Prerequisites: Two years university level Spanish

SPAN 494 Individual Study Abroad: Topics in Spanish American Literature 1-6 credits

Topics will vary. May be repeated for credit. Study for credit must be approved by the department prior to departure.

Prerequisites: Two years university level Spanish

SPAN 495 Individual Study Abroad: Topics in Spanish Peninsular Literature 1-6 credits

Topics will vary. May be repeated for credit.

Prerequisites: Two years university level Spanish

SPAN 496 Individual Study Abroad: Topics in Spanish American Culture 1-6 credits

Topics will vary. May be repeated for credit.

Prerequisites: Two years university level Spanish

SPAN 497 Individual Study Abroad: Topics in Spanish Peninsular Culture 1-6 credits

Topics will vary. May be repeated for credit.

SPAN 498 Internship: Spanish for the Professions 1-4 credits

Internship in Spanish is designed to provide opportunities to apply classroom learning to practice and enhance skills, to experience the workplace and professional demands, and to explore a career.

SPAN 499 Individual Study 1-4 credits

Variable topics.

Prerequisites: completion of eight 300-level credits, or equivalent

Special Education

SPED 108 Human Services and Disabilities 3 credits

Exploration of human service professions serving and interacting with individuals with disabilities. Diverse Cultures: Purple

SPED 320 Culturally and Linguistically Sustaining Practices Seminar 1 1 credit

This seminar is the first of a four-part seminar series. Learners will be introduced to the intersectionality of identities and multiple theories of race and ethnicity. Students will actively engage in dialogue and learning opportunities focused on the role race and racism have in perpetuating social disparities between dominant and marginalized racial groups.

SPED 321 Culturally and Linguistically Sustaining Practices Seminar 2 1 credit

This seminar is part two of a four-part seminar series. Learners will build upon seminar one to gain understanding and develop plans, procedures, and actions to create learning environments with a foundation of culturally responsive teaching and deep social and cognitive neuroscience. Learners will build upon seminar one's determined problem of practice or policy implementation resulting in education inequity with research and study of historical context and analysis of what continues to show up today.

SPED 322 Culturally and Linguistically Sustaining Practices Seminar 3 1 credit

This seminar is part three of a four-part seminar series. Learners will build upon seminars one and two to gain understanding and develop plans, procedures, and actions to create learning environments with a foundation of culturally responsive teaching and deep social and cognitive neuroscience. Learners will build upon previous seminars determined problem of practice or policy implementation resulting in education inequity with research and study of historical context and analysis of what continues to show up today.

SPED 323 Culturally and Linguistically Sustaining Practices Seminar 4 1 credit

This seminar is part four of a four-part seminar series. Learners will build upon the first three seminars to further understand culturally and linguistically sustaining practices. Critical discussions and collaborative activities will deepen understanding of the intersections between culture, language, beliefs, and values about disability and special education. This course provides theoretical foundations and practical strategies for educators to create and sustain classroom communities that honor the diverse backgrounds of their students while holding them to high standards.

SPED 324 Accessing the general education curriculum 2 credits

This course provides teacher candidates with the knowledge and skills necessary to understand curriculum standards to design instruction related to the general education curriculum. It will provide candidates with opportunities to identify materials and curriculum to ensure access to the general education standards for students with IEPs.

SPED 333 Transition Plan/Secondary Methods for Students w/Mild Moderate Disabilities 4 credits

This course is designed to teach secondary assessment, instructional and transition planning methods needed by students in the undergraduate program of study in Special Education - Academic and Behavioral Strategist. The course focuses on strategies that promote choice and quality of life for young adults with mild to moderate disabilities.

SPED 401 IEP Writing and Professional Practice 4 credits

This course will introduce teacher candidates to different aspects of being a Special Educator, including writing Individual Education Program plans, working collaboratively, addressing strategies for working with paraprofessionals, developing an understanding of collaboration including co-teaching, and using technology in the classroom to assist student learning.

SPED 404 Instructional Decision Making 4 credits

This course provides the student learner with the knowledge and skills necessary to make effective data-based decisions within the instructional context. Students will gain training in and knowledge of instructional decision making at the individual and systems level.

SPED 405 Individuals with Exceptional Needs 3 credits

This course provides a rigorous overview to the education of children and youth who differ greatly from the average in physical, cognitive, emotional or social characteristics. It introduces the student to Minnesota's Graduation Standards Rule in relation to the needs of children and youth who receive special education services.

SPED 406 Strategies for Teaching Learners with Special Needs: Reading & Writing 4 credits

This course teaches how to select and apply specific evidence-based reading and writing strategies for students with mild/moderate disabilities. Students will learn basic instructional principles behind validated instructional models and how to use these models in different instructional settings.

SPED 407 Positive Behavioral Interventions and Supports 3 credits

This course is designed to teach the principles of Positive Behavior Supports and intervention planning. Students will learn how PBIS can be applied at the school, classroom, and individual levels. Students will apply learned information to identify successful interventions.

SPED 408 Individuals with Diverse and Exceptional Needs 4 credits

Designed to provide an introduction and overview of the characteristics and educational needs of children and youth with diverse and exceptional needs in the public school. The course introduces Minnesota Graduation Standards Rules in relationship to the needs of students with diverse and exceptional needs.

SPED 409 Learning and Human Development for Diverse Learners 4 credits

Introduces students to theories of learning and human development as they relate to regular and diverse learning populations. Students will acquire an understanding of the many factors that affect learning and human development and strategies that can be used to enhance learning for all learning populations. Diverse Cultures: Gold

SPED 410 Assessment, Evaluation, and Individualized Planning for Diverse Learners 4 credits

Provides the student learner with the knowledge and skills to assess the individual needs of the student learner and design an educational program based on the assessment information collected. Emphasis will be placed on providing the student learner with the opportunity to learn and administer a variety of norm-referenced and criterion-referenced test instruments and apply test results to developing individual education programs for a variety of learners with diverse educational needs.

SPED 411 Effective Strategies for the Inclusive Classroom 4 credits

Describes and demonstrates strategies that teachers can use to differentiate the curriculum to meet the needs of special learners in an inclusive classroom. Course will also examine the latest knowledge related to intelligence, creativity, holistic education and classroom differentiation.

SPED 412 Due Process, Planning & Design of the Individual Education Program 4 credits

Provides student learner with the knowledge and skills to plan, develop, and implement the IEP for a student with DCD. In addition, the student learner will develop an understanding of the alternative dispute processes in the state of Minnesota. The student learner will learn the legal requirements of the IEP process and parental participation including a) how to operate the IEP process, b) conciliation process, c) participation in mediation, and d) due process as outlined in IDEA 1997. Legal issues and requirements will be discussed.

SPED 413 Professional Growth and Development for Teachers of Diverse Learners 4 credits

Introduces students to methods and strategies for personal and professional growth and development. As a result of taking this course, students will be able to a) engage in reflective inquiry for personal and professional growth, b) identify and demonstrate dispositions necessary for teaching special needs learners, c) understand the cultural, social, and other environmental effects on learning and human development, and d) use strategies for personal and professional growth.

SPED 414 Literary Methods for an Inclusive Classroom: Diverse Learners 4 credits

Provides an introduction to reading and language arts instruction for special needs and other students in an inclusive classroom. As a result of taking this course, students will be able to plan and implement effective literacy lessons and utilize a variety of differentiation strategies.

SPED 422 Strategies for Teaching Learners with Special Needs: Math and Science 4 credits

This course provides instruction in the connections between critical content concepts, standards, research-based practices in mathematics and science, and students with mild-moderate disabilities for the purpose of developing goals and objectives in order to implement effective instruction.

SPED 425 Foundations of ASD and EBD 4 credits

This ASD/EBD Foundations course will provide apprentices with in-depth information about ASD and EBD historical and philosophical foundations, etiology and characteristics, legal basis and criteria and related assessments for determining eligibility for services, as well as general information about IEP development and research-based and evidence-based practices.

SPED 426 ASD and EBD Methods 4 credits

This ASD/EBD Methods course will provide apprentices with in-depth information about the FBA and BIP process, implementing behavior management strategies that promote learning and generalization of skills across all environments for individuals of all ages, and writing IEPs.

SPED 427 Assessment and Data-based decision making in Special Education 4 credits

This course is designed to provide students with the foundation for understanding and implementing the assessment process effectively. Specifically, by building skills associated with educational assessment methods and procedures, students will develop core decision making and program planning competencies for students with disabilities and from culturally or linguistically diverse backgrounds. An emphasis will be on classroom-based measures that can be used to make educational decisions to plan instruction for students, particularly those who are experiencing academic difficulty.

SPED 428 Emotional and Behavioral Disorders methods 4 credits

This course is designed to equip teacher candidates with the knowledge and skills necessary to effectively address the unique academic and behavioral needs of students with emotional and behavioral disorders (EBD). Candidates will explore the multifaceted nature of EBD and delve into evidence-based instructional strategies and interventions aimed at fostering academic success and positive behavior in diverse educational settings.

SPED 429 Autism Spectrum Disorders methods 4 credits

This course will provide students with knowledge and skills about instructional strategies that are used in the field of autism with evidence of effectiveness, including several evidence-based practices in their responsibilities of direct everyday instruction and/or consultation to general education teachers.

SPED 430 Student teaching: Emotional and Behavioral Disorders **3 credits**
This course is the culmination of the MN Special Education Emotional or Behavioral Disorders licensure program. Apprentices will complete a student teaching experience in which they gradually assume the full responsibilities of a special education teacher under the guidance of their Journey Worker.

SPED 431 Student Teaching: Autism Spectrum Disorder **3 credits**
This course is the culmination of the MN Special Education Autism Spectrum Disorders licensure program. Apprentices will complete a student teaching experience in which they gradually assume the full responsibilities of a special education teacher under the guidance of their Journey Worker.

SPED 448W Behavior Management and Learning Environments for Diverse Learners **4 credits**
This course is designed to teach pre-service special education teachers the basics of Applied Behavior Analysis as well as classroom management skills that foster positive interactions among students in pre-K through 12th grade. Students will learn to conduct behavioral assessments and report results through professional writing.

SPED 458 Seminar: Student Teaching **4 credits**
Focuses on competencies, strategies, issues and trends to prepare the student to teach persons with DCD.

Corequisites: SPED 459

SPED 459 Student Teaching: Mild and Moderate Disabilities **8 credits**
Focuses on documenting the university student's ability to apply the knowledge and skills learned in coursework and teach youth with DCD in the public school. The university student will assess students with DCD, develop individual goals and objectives, design instructional units and lesson plans, implement instruction in the LRE, and evaluate the effectiveness of instructional interventions.

Corequisites: SPED 458

SPED 490 Workshop in Special Education **1-3 credits**
Authentic applications of special education knowledge.

SPED 491 In-Service Special Education **1-2 credits**
Teaching students with disabilities.

SPED 499 Individual Study **1-3 credits**
Advanced independent study in a specified area.

Statistics

STAT 154 Elementary Statistics **4 credits**
An introduction to statistical concepts and methods that is applicable to all disciplines. Topics include descriptive measures of data, probability and probability distributions, statistical inference, tests of hypotheses, confidence intervals, correlation, linear regression, and analysis of variance. The use of statistical software will be emphasized. Prereq: ACT Math sub-score of 19 or higher, successful completion of MATH 098 or appropriate placement scores (see Placement Information under Statistics) Fall, Spring, Summer GE-4

Prerequisites: Satisfy Placement Table in this section, or MATH 098 with grade of P.

STAT 221 Applied Probability and Statistics for Engineers **3 credits**
An introduction to statistics with emphasis on the applied probability models used in Science and Engineering. Topics covered include samples, probability, probability distributions, estimation, one and two samples hypotheses tests, correlation, simple and multiple linear regressions.

Prerequisites: MATH 112 with grade of "C" (2.0) or better

STAT 354 Concepts of Probability & Statistics **4 credits**
A calculus-based introduction to probability and statistics. Topics include probability, random variables, probability distributions (discrete and continuous), joint probability distributions (discrete and continuous), statistical inference (both estimation and hypothesis testing), confidence intervals for distribution of parameters and their functions, sample size determinations, analysis of variance, regression, and correlation. This course meets the needs of the practitioner and the person who plans further study in statistics. Same as MATH 354. consent Fall, Spring, Summer

Prerequisites: MATH 122 with C or better or consent

STAT 356 Introduction to Programming in SAS **3 credits**
Introduction to basic programming techniques: creating DATA and PROC statements, libraries, functions, programming syntax, and formats. Descriptive and Inferential statistics in SAS. Emphasis is placed on using these tools for statistical analyses. Working with arrays, loop and SAS macro.

Prerequisites: STAT 154 or instructor's approval

STAT 398 CPT: Co-Operative Experience **0 credits**
Curricular Practical Training: Co-Operative Experience is a zero-credit full-time practical training experience for one semester and an adjacent fall or spring term. Special rules apply to preserve full-time student status. Please contact an advisor in your program for complete information.

Prerequisites: At least 60 credits earned; in good standing; instructor permission; co-op contract; other prerequisites may also apply.

STAT 450 Regression Analysis **3 credits**
Simple and multiple linear regression, model adequacy checking and validation, identification of outliers, leverage and influence, polynomial regression, variable selection and model building strategies, nonlinear regression, and generalized linear regression.

Prerequisites: MATH 354 / STAT 354 or STAT 455 with "C" (2.0) or better or consent

STAT 451 Design and Analysis of Experiments **3 credits**
Randomized complete block design, Latin squares design, Graco- Latin squares design, balanced incomplete block design, factorial design, fractional factorial design, response surface method, fixed effects and random effects models, nested and split plot design.

Prerequisites: MATH 354 / STAT 354 or STAT 455 with "C" (2.0) or better or consent

STAT 455 Theory of Statistics I **4 credits**
A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications. Includes probability, continuous probability distributions, multivariate distributions, functions of random variables, central limit theorem and statistical inference. Same as MATH 455.

Prerequisites: MATH 223 with "C" (2.0) or better or consent

STAT 456 Theory of Statistics II **4 credits**

A mathematical approach to statistics with derivation of theoretical results and of basic techniques used in applications, including sufficient statistics, additional statistical inference, theory of statistical tests, inferences about normal models and nonparametric methods. Same as MATH 456.

Prerequisites: MATH 455, STAT 455 with "C" (2.0) or better or consent

STAT 457 Sample Survey, Design and Analysis **3 credits**

Sampling distributions: means and variances. Bias, robustness and efficiency. Random sampling, systematic sampling methods including stratified random sampling, cluster sampling and two-stage sampling, ratio, regression, and population size estimation. Suitable statistical software is introduced, for example, MATLAB, R, SAS, etc.

Prerequisites: Either MATH/STAT 354 or both MATH 121 and STAT 154 with "C" (2.0) or better, or consent.

STAT 458 Categorical Data Analysis **3 credits**

Forms of multivariate analysis for discrete data, two dimensional tables, models of independence, log linear models, estimation of expected values, model selection, higher dimensional tables, logistic models and incompleteness. Logistic regression. Suitable statistical software is introduced, for example, MATLAB, R, SAS etc.

Prerequisites: Either MATH/STAT 354 or both MATH 121 and STAT 154 with "C" (2.0) or better, or consent.

STAT 459 Nonparametric Methods **3 credits**

Derivation and usage of nonparametric statistical methods in univariate, bivariate, and multivariate data. Applications in count, score, and rank data, analysis of variance for ranked data. Nonparametric regression estimation. Suitable statistical software is introduced, for example, MATLAB, R, SAS, etc.

Prerequisites: Either MATH/STAT 354 or both STAT 154 and MATH 121 with "C" (2.0) or better, or consent.

STAT 488 Seminar **1-3 credits**

The study of a particular topic primarily based upon recent literature. May be repeated for credit on each new topic.

STAT 491 In-Service **1-4 credits**

A course designed to upgrade the qualifications of persons on-the-job. May be repeated for credit on each new topic.

STAT 492 Statistics Capstone Experience **3 credits**

This course is designed to allow undergraduate students an opportunity to integrate their statistics experiences by engaging each student in working on problems in applied or theoretical statistics. Spring

Prerequisites: STAT 457, STAT 458, STAT 459, STAT 450 (at least two of these)

STAT 495 Selected Topics **1-4 credits**

A course in an area of statistics not regularly offered. May be repeated for credit on each new topic.

STAT 498 Internship **1-12 credits**

Provides a student the opportunity to gain expertise and experience in a special field under the supervision of a qualified person.

STAT 499 Individual Study **1-4 credits**

Independent individual study under the guidance and direction of a faculty member. Special arrangements must be made with an appropriate faculty member. May be repeated for credit of each new topic.

Theater arts

THEA 100 Introduction to Theatre **3 credits**

Survey of theatre arts; lectures, with lab experience available. Note: Students may not take both THEA 115 and this class.

THEA 101 Acting for Everyone **3 credits**

Performance scenes and exercises for the beginner.

THEA 102 Theatre Activity: Acting **1-2 credits**

Acting in a mainstage or approved production. May be repeated.

Prerequisites: Consent

THEA 103 Theatre Activity: Management **1-2 credits**

Work on stage or house management, or public relations. May be repeated.

Prerequisites: Consent

THEA 104 Theatre Activity: Dance Captain **1-2 credits**

Serve as Dance Captain, to assist the Choreographer, for a mainstage or approved production. May be repeated.

Prerequisites: Consent

THEA 105 Theatre Activity: Stagecraft **1-2 credits**

Work on stage crew in a mainstage production. May be repeated.

Prerequisites: Consent

THEA 107 Theatre Activity: Costume **1-2 credits**

Work on costumes or wardrobe crew in a mainstage production. May be repeated.

Prerequisites: Consent

THEA 108 Theatre Activity: Lighting **1-2 credits**

Work on lighting crew in a mainstage production. May be repeated.

Prerequisites: Consent

THEA 109 Theatre Activity: Sound **1-2 credits**

Work on sound crew in a mainstage production. May be repeated.

Prerequisites: Consent

THEA 110 Fundamentals of Acting **3 credits**

Performance scenes and acting exercises for the beginning theatre major.

Prerequisites: Consent

THEA 111 Private Voice for the Actor **1 credits**

Private lessons in developing the actor's singing voice. May be repeated.

Prerequisites: Consent

THEA 121 Movement for Theatre **3 credits**

Instructs the student through a series of movement exercises in body alignment, breathing, flexibility, strength and coordination.

Prerequisites: Consent

THEA 210 Intermediate Acting 3 credits The process of character structuring through script analysis and scene work. Prerequisites: THEA 110 or consent	THEA 260 Costume Construction 3 credits Theory and techniques in stage costume construction. Prerequisites: THEA 100
THEA 212 Music Skills for Theatre I 2 credits A group instruction course covering fundamental music theory and skills applicable to the theatre artist including the study of music notation, style, harmony and literature. Skills learned will include basic keyboarding, sight reading and sight singing music. Fall	THEA 262 Dance Production: Costumes 1 credits Fundamental concepts of costume design and production for the Dance.
THEA 213 Music Skills for Theatre II 2 credits A continuation of Music Skill for Theatre I, this course will focus on recent developments in the American Music Theatre while increasing skills learned in the previous class. Spring Prerequisites: THEA 212	THEA 265 Stage Makeup 2 credits Theory and practical laboratory work in stage makeup applications. Prerequisites: Consent
THEA 214 Singing for the Actor 1 credits Study and exercise to prepare actors to sing for the musical theatre with the focus on competence and musicianship. Prerequisites: Permission of Instructor	THEA 270 Lighting Technology 3 credits The study of lighting technology and its effect on lighting design. Prerequisites: THEA 100
THEA 215 Audition Methods 3 credits The development of a repertoire of audition pieces to increase the ability to perform with confidence on short notice. Prerequisites: THEA 110 or consent	THEA 272 Dance Production: Lighting 1 credits Fundamental concepts of lighting design and production for the Dance.
THEA 231 Stage Management 3 credits Exploration of all aspects of theatrical stage management activities through specific theoretical and practical study.	THEA 275 Sound Technology 3 credits The study of sound technology and its effect on sound design. Prerequisites: THEA 100
THEA 235 Fundamentals of Directing 3 credits Introduction to the theory and practice of directing for the theatre. Prerequisites: THEA 100 and THEA 101 or THEA 110	THEA 276 Dance Production: Sound 1 credits Fundamental concepts of sound design and production for the Dance.
THEA 240 Basic Design 3 credits Introduction to the concepts, process, and practices of theatrical scenic, lighting, and costume design including script analysis and historical overviews. Prerequisites: THEA 100	THEA 285W Theatre of Diversity 3 credits A survey of literature, artists and performances with specific regard to the theatre of diversity including, but not restricted to: Feminist Theatre, Gay and Lesbian Theatre, African-American Theatre, Asian American Theatre, Hispanic Theatre, etc. Diverse Cultures: Purple
THEA 245 Scene Painting I 3 credits Introductory course examining the basics of materials and techniques of scenic painting with a large amount of lab time for experimentation with technique. Prerequisites: Consent	THEA 295 Touring Theatre 1-4 credits Work on the actual mounting and performance of a touring theatrical production. Prerequisites: Consent
THEA 252 Theatre Technology 3 credits Fundamental concepts of technical theatre; an overview of basic stagecraft, costuming, lighting, and sound in the contemporary theatre. Prerequisites: THEA 100	THEA 300 Summer Stock 1-4 credits Technical work and/or acting in summer theatre productions. May be repeated. Prerequisites: Consent
THEA 255 Stagecraft 3 credits Introduction to theory and practice of construction techniques used in the theatre. Prerequisites: THEA 100	THEA 301 Practicum: Directing 1-2 credits A considerable production responsibility which utilizes skills in script analysis, actor coaching, design coordination and general production management; or assistant directing for a mainstage production. May be repeated. Prerequisites: Consent
	THEA 302 Practicum: Acting 1-2 credits A considerable production responsibility dealing with the preparation and performance of a major acting role. May be repeated. Prerequisites: Consent
	THEA 303 Practicum: Theatre Management 1-2 credits Special assignments in stage management, house, and/or concessions management, public relations or related areas. May be repeated. Prerequisites: Consent

THEA 304 Practicum: Scene Design 1-2 credits Preparation and execution of a major scene design assignment. Requires a design and construction schedule, preliminary and final design concepts, and necessary drafting details. May be repeated. Prerequisites: Consent	THEA 400 Portfolio Seminar 1 credits Exploring the techniques of building a working design/technology portfolio and resume. Prerequisites: Consent
THEA 305 Practicum: Tech Theatre 1-2 credits A considerable production responsibility dealing with some technical aspects including technical drawings, budget management, or construction techniques. May be repeated. Prerequisites: Consent	THEA 410 Musical Theatre Acting I 3 credits Introduction to musical theatre performance techniques for the American Musical Theatre actor. Prerequisites: THEA 210 or consent
THEA 306 Practicum: Costume Design 1-2 credits Full and assistant costume design assignments for theatre productions. May be repeated. Prerequisites: Consent	THEA 411 Music Theatre Acting II 3 credits Scene studies from the American Musical Theatre, as well as performance techniques for the singing actor. Prerequisites: THEA 210 and consent
THEA 307 Practicum: Costume Construction 1-2 credits The construction of costumes for theatre productions. May be repeated. Prerequisites: Consent	THEA 412 Theatre Speech 3 credits Study and exercises in vocal development emphasizing the demands of stage speech. Prerequisites: THEA 210 or consent
THEA 308 Practicum: Light Design 1-2 credits Preparation and execution of a major lighting design assignment. Requires a design with appropriate schedules, supervision of hanging, focusing and cues. May be repeated. Prerequisites: Consent	THEA 414 Stage Dialects 3 credits A study and practice of vocal dialects most often used in performance. Prerequisites: THEA 413
THEA 309 Practicum: Sound 1-2 credits Preparation and execution of a major sound design assignment including all sound effects, reinforcement and amplification. May be repeated. Prerequisites: Consent	THEA 416 Acting Scene Studies 3 credits Advanced scene studies with a focus on analysis and the varied approaches to developing motivations. Prerequisites: THEA 210 or consent
THEA 311 Private Voice for the Actor 0 credits Continuation of THEA 111. May be repeated. Prerequisites: THEA 111	THEA 417 Acting Techniques 3 credits The development of individual performance craft and advanced acting methodologies. Prerequisites: THEA 210 or consent
THEA 315 Careers in Theatre 1 credits Introduction to the various career opportunities directly in or appertaining to theatrical arts performance. Prerequisites: THEA 100	THEA 417W Acting Techniques 3 credits The development of individual performance craft and advanced acting methodologies. Prerequisites: THEA 210 or consent
THEA 335 Intermediate Directing 3 credits Intermediate Directing focuses on the semiotics of staging and casting, composition, and artist leadership. Students learn how to lead rehearsals, cast shows, and create powerful and meaningful stage pictures. Actor coaching is developed. Prerequisites: THEA 235	THEA 418 Acting Styles 3 credits Advanced scene studies in classical and stylized dramatic literature. Prerequisites: THEA 210 or consent
THEA 337 Devised Theatre 3 credits Students will build a strong ensemble and work together to create a new production about a specific event or theme relevant to them. THEA 381W Play Analysis 3 credits The study and application of various analytical approaches to play texts in preparation for production. Prerequisites: THEA 100	THEA 419 Acting for Radio/TV 3 credits Development of performance craft for the media. Prerequisites: THEA 210 and consent
	THEA 426 Stage Combat 2 credits An exploration of basic skills involved in unarmed combat and a variety of historical weapons systems with primary emphasis on theatricality and safety. Prerequisites: Consent THEA 430 Theatre Management 3 credits Exposes students to the functions of theatre managers through case studies, discussions, practical application and readings. Prerequisites: THEA 235

THEA 432 Practicum: Choreography 1-2 credits Serve as Choreographer for a mainstage or approved production. May be repeated. Prerequisites: Consent	THEA 456 Advanced Technical Direction 3 credits Explores advanced facets of technical direction including entertainment engineering and technology currently in use in the field. Prerequisites: THEA 455
THEA 433 Practicum: Musical Directing 1-2 credits Serve as Musical Director for a mainstage or approved production. May be repeated. Prerequisites: Consent	THEA 460 Costume Design I 3 credits Theory and techniques in costume design and execution. Prerequisites: THEA 240 or consent
THEA 434 Practicum: Dramaturgy 1-2 credits Serve as Dramaturg for a mainstage or approved production. May be repeated. Prerequisites: Consent	THEA 461 Costume Design II 3 credits Advanced costume design theory and techniques. Prerequisites: THEA 460
THEA 435 Advanced Directing Methods 3 credits Advanced studies in script analysis, actor psychology and staging techniques culminating in performance projects with critical analysis. Prerequisites: THEA 235 and consent	THEA 464 Costume History 3 credits Survey of costume history from ancient Egypt to 1900. Prerequisites: Consent
THEA 440 Scene Design I 3 credits Development of techniques and skills in the creation of scenery. Prerequisites: THEA 240 or consent	THEA 465 Advanced Makeup 3 credits Practical application of advanced makeup techniques. Prerequisites: THEA 265
THEA 441 Scene Design II 3 credits Refinement of model building and drawing skills in theatrical design. Prerequisites: THEA 440	THEA 470 Lighting Design I 3 credits The study of lighting equipment, usage, techniques and stage lighting design. Prerequisites: THEA 270
THEA 444 Styles and Ornamentation 3 credits A visual appreciation of assorted cultures through the study of their architecture, decoration, furniture, utensils, etc. Prerequisites: Consent	THEA 471 Lighting Design II 3 credits Solving particular lighting design challenges. Prerequisites: THEA 470
THEA 445 Scene Painting II 3 credits Provides information on materials and techniques of scenic painting with a large amount of lab time for experimentation with technique. Prerequisites: THEA 252 or consent	THEA 472 Virtual Lighting 3 credits Computer realization for virtual lighting design to enhance practical production quality. Prerequisites: THEA 470. Permission of Instructor
THEA 448 Drawing and Rendering for the Theatre 3 credits Exploring compositional organization of the two-dimensional surface by experimenting with a variety of media, materials, forms, approaches and subjects as a means for theatrical communication. Prerequisites: THEA 240	THEA 474 Advanced Sound Technology: Digital Audio Systems 3 credits A study of the concepts behind digital audio and an exploration of their practical uses. Prerequisites: THEA 275
THEA 451 Drafting for the Theatre 3 credits Enhances the advanced theatre student's ability to show complex elements of a theatrical design in a clear manner using accepted theatrical drafting methods. Prerequisites: Consent	THEA 475 Sound Design I 3 credits Production and sound effects, electronic sound reinforcement of live performance, choice and operation of sound equipment, as well as basic music styles and terminology. Prerequisites: consent
THEA 455 Technical Direction 3 credits Explores all facets of technical direction, construction techniques, and project management. Prerequisites: THEA 255	THEA 476 Sound Design II 3 credits Integrated sound design to support and enhance theatrical production. Prerequisites: THEA 475
	THEA 481 History of Western Theatre 3 credits Survey of theatrical history from its origins to 1700. Prerequisites: THEA 100

THEA 482 Perspectives in World Performance 3 credits
This course examines how all global performance styles and techniques influence each other. Focusing on the last 250 years, students will examine how performance practices from all around the world have merged (sometimes in a celebratory way, sometimes due to appropriation) to become the performing arts of today. Diverse Cultures: Purple

Prerequisites: THEA 100

THEA 483 Musical Theatre History 3 credits
Survey of the history of the American Musical Theatre from its origins to the present.

Prerequisites: THEA 100 and consent

THEA 485W Theatre Dramaturgy 3 credits
This class teaches how to access historical information and present it to directors, actors, or designers in a way that will help them make informed and practical artistic choices.

Prerequisites: THEA 100 and consent

THEA 487W Playwriting 3 credits
Writing the short and long play.

Prerequisites: THEA 100. Permission of instructor.

THEA 490 Topics in Theatre 1-3 credits
Special topics not covered in other classes. May be repeated.

Prerequisites: THEA 100. Permission of Instructor

THEA 497 (1-8) Internship 1-8 credits
Prerequisites: Consent

THEA 499 Individual Study 1-3 credits
Prerequisites: Consent

Urban and Regional Studies

URBS 100 Introduction to the City 3 credits
A fresh look at the city, with emphasis on the reasons why cities have grown and how people can make cities livable.

URBS 110 The City: Design and Architecture 3 credits
Appreciation of the city as the highest cultural achievement in design and architecture.

URBS 150 Sustainable Communities 3 credits
This course will identify and analyze global social, economic, political and environmental problems impacting community viability and explore the full range of solutions to these problems. The course will view communities as complex, sustainable organisms and bring together the works of the great minds working on sustainability.

URBS 230 Community Leadership 3 credits
Introduction to community leadership-elected, professional, or voluntary-and the skills and values which support it.

URBS 230W Community Leadership 3 credits
Introduction to community leadership-elected, professional, or voluntary-and the skills and values which support it.

URBS 401 Foundations in Urban Management and Planning 3 credits
This course is a survey of the local community--the forces which shape it, the significance of a democratic public, and the professional practice of local government service. Fall, Spring

URBS 402 Urban Analysis 3 credits
Introduction to skills and techniques used to form questions about urban affairs, to organize and analyze information to answer it, and to present the results of one's analysis in a professional format. Fall, Spring

URBS 412 Public Information and Involvement 3 credits
This course, designed for student preparing for a professional career in local government or public service, focuses on media relations and building citizen involvement through public awareness projects.

URBS 413 Urban Program Evaluation 3 credits
Reviews processes and techniques related to evaluation of public programs.

URBS 415 Urban Housing Policy 3 credits
Public policy and programs that address issues of housing supply, quality, costs, and neighborhood revitalization.

URBS 417 Urban Administrative Law 3 credits
An overview of local government law and local governing powers. In addition, public issues in the legal context will be examined from a management and operational perspective.

URBS 431 Urban Design Principles 3 credits
A basic working knowledge and vocabulary of urban design concepts and techniques in an applied problem-solving context.

URBS 437 Urban Heritage Preservation 3 credits
Preservation techniques, principles of structural evaluation, adaptive use potentials and options, economic consideration in preservation and the role of legislation.

URBS 438 Historic Preservation: Policy and Field Methods 3 credits
Historic Preservation: Policy and Field Methods introduces students to the rules and laws of structural historic preservation. The course will investigate the major policy documents, laws, agencies, survey methods, and examine how they are applied in local government preservation.

URBS 453 Grants Administration 3 credits
Raising resources for public and nonprofit organizations--from needs assessment through obtaining funding to managing the grant after it is awarded.

URBS 457 Economic Development 3 credits
A survey course covering the concepts, processes, tools and strategies of economic development in local communities. Emphasis is on the "why" and "how" of economic development.

URBS 461 Environmental Planning 3 credits
Examines and applies the fundamental concepts, techniques and mechanisms for environmental planning at the city, county, and sub-state regional levels.

URBS 471 Urban Transportation 3 credits
Examines transportation problems of, and solutions for large and medium sized cities. Special emphasis on reducing traffic congestion, improving management of transit systems, and linking transportation and land-use planning.

URBS 481 Selected Topics 1-3 credits
Varying topics dealing with emerging trends and contemporary needs facing urban America.

URBS 485 Community-Based Problem Solving **1-6 credits**
Problem solving in communities and direct involvement into specific areas of study of student interest.

Prerequisites: Consent

URBS 489 Capstone Seminar **3 credits**
Assemble and evaluate information and opinions into a coherent position on what makes cities work, and prepare for entry into professional world of work in cities.

URBS 497 (1-12) Internship **1-12 credits**
Scheduled work assignments, varying in length and content, under the supervision of selected professional sponsors.

Prerequisites: Consent

URBS 499 Individual Study **1-4 credits**
Independent study under supervision of an instructor with a research paper or report to be presented.

Prerequisites: Consent

Wellness

WELL 100 Building Academic and Wellness Skills for Student Success **1 credits**

This course builds wellness, resilience, and academic skills designed to support your health and your life as a student through practicing skills and strategies for stress hardiness and academic success. Throughout the semester, students will identify their personal strengths, values, and interests, practice skills for healthy interpersonal relationships, and explore various domains of wellness and strategies for self-care and self-determination, in a structured and supportive environment. Students will also investigate learning styles, study and test-taking strategies, and practice various approaches to self-advocacy, planning, and SMART goal setting.

World Languages and Cultures

WLC 280W Parallel Worlds: Exploring Cultures & Symbols **4 credits**
This course explores a wide range of cultural topics such as race, gender, human rights, social conflict, mythology, imaginary worlds, etc. Topics vary every semester and will be explored from a global perspective involving at least 4 cultures (e.g., Dakota, German, Francophone, Scandinavian, Hispanic, Lusophone, etc.). The course is taught in English and exposes students to international and diverse points of view that prepare them to be global citizens. Diverse Cultures: Purple

WLC 310 Portuguese for Spanish Speakers **4 credits**
The course is designed to help advanced Spanish students identify similarities and differences between Spanish and Portuguese and begin developing Portuguese productive language skills and cultural competency through comparative practice.

Prerequisites: SPAN 201W. Completion of one 300 level Spanish course or equivalent intermediate-midproficiency level of Spanish for admission to the course. See department for language proficiency evaluation information or instructor permission.

WLC 398 CPT: Co-Operative Experience **0 credits**
Curricular practical training for World Languages and Cultures is a full-time practical experience in a professional setting in which more than one language is used. The experience is designed to allow students to improve overall communicative proficiency in languages and address business practices associated with the students' academic field of expertise. The Co-Op experience covers a minimum of two consecutive academic terms and requires that students register for a minimum of two consecutive academic terms following the experience.

WLC 460 Methods of Teaching Modern Languages **3 credits**
Introduction to theory and practice of modern language teaching, including lessons in listening, speaking, reading, writing, vocabulary, and culture. Includes testing, program design, lesson planning, and use of technology. Fall

Prerequisites: Students must demonstrate sufficient language competence in the target language so as to be able to teach courses exclusively in the target language. See content faculty for evaluation.

WLC 461 Applied Modern Language Teaching Methods **1 credits**
A field experience including placement in the secondary level school setting for students earning licensure in modern language teaching. Practicum students work with middle or high school students of French, German, or Spanish. Take concurrently with or following WLC 460.

WLC 462 Foreign Languages in the Elementary School (FLES) Methods **3 credits**
Introduction to theory and practice of modern language teaching for children grades K-6, including oral language development, second language literacy development, content-based language instruction, and techniques for language immersion programs.

Prerequisites: Students must demonstrate sufficient language competence in the target language so as to be able to teach courses exclusively in the target language. See content faculty for evaluation.

WLC 463 Applied FLES Methods **1 credits**
A field experience including placement in the elementary level school setting for students earning licensure in modern language teaching. Practicum students work with elementary school students in French, German, or Spanish. Take concurrently with or following WLC 462.

WLC 499 Individual Study **1-4 credits**
Special topics in language education. May be repeated for credit.

GENERAL EDUCATION AND GRADUATION REQUIREMENTS

Graduation Requirement

General Education

Diverse Cultures: Purple

Narrative

To prepare students with course content and the analytical and reflective skills to better understand diversity in the United States and in other societies across the world.

Learning Outcomes

Students will be able to:

1. Master an understanding of diversity as defined by Minnesota State Mankato.
2. Acquire a substantive knowledge base to identify the impact of oppression for individuals from diverse populations.
3. Obtain the analytical skills necessary to make links between historical practices and contemporary U.S. societal issues of diversity.
4. Apply the same method for interpreting diversity issues in the United States to understanding issues of diversity in other societies across the world.
5. Develop an understanding of historical and contemporary social relations in specific societies across the world.

Satisfying Purple Courses

1. Purple courses are primarily aimed at helping students learn content.
2. Purple courses allow students to explore basic concepts such as oppression, prejudice, discrimination, racism and ethnocentrism and responses to each; civil liberties in the context of economic, political, social, religious and educational issues of race, gender, sexual orientation, age, class and disabilities in a pluralistic society.
3. Although Purple courses may focus primarily on one diverse group of people, the course content should relate the basic concepts and issues discussed to a variety of groups.
4. Courses must meet Purple learning outcome 1 and at least two of the other Purple learning outcomes.
5. Purple courses may have experiential and reflective components, but the primary focus is on content.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AIS	112	Elementary Ojibwe I	4.00	Purple
AIS	113	Elementary Ojibwe II	4.00	Purple
AIS	130	Introduction to Indigenous Education	3.00	Purple
AIS	211	Native America to 1900	3.00	Purple
AIS	212	Native America 1900 to Present	3.00	Purple
AIS	330	Indigenous Education	3.00	Purple
AIS	340	American Indians in Film	3.00	Purple
AIS	360	Indigenous Peoples and Environmental Struggles	3.00	Purple
AIS	380	The Sacred Landscape	3.00	Purple
ANTH	101	Introduction to Anthropology	4.00	Purple
ANTH	230	Peoples and Cultures of the World	4.00	Purple
ANTH	240	Language and Culture	4.00	Purple
ANTH	245	The Social Life of Swearing	4.00	Purple
ANTH	260	Vampires, Werewolves, and Zombies: Folklore of Fear	4	Purple
ANTH	261	Taboos, Tattoos, and T-Shirts: Culture and Body Art	4	Purple
ANTH	269	Anthropology of Sex	4.00	Purple
ANTH	332	Anthropology of Religion	4	Purple
ANTH	340	Language and Power	4.00	Purple
ANTH	361	Foodways	4	Purple
ART	160	Introduction to Visual Culture	3.00	Purple
ART	260	Art History Survey I	3.00	Purple
ART	467	Art of the Islamic World	3.00	Purple
ART	469	Asian Art	3.00	Purple
CDIS	290	Introduction to Communication Disorders	3.00	Purple
CIS	113	Health Humanities and Health Informatics	4.00	Purple
CJ	101	Introduction to Criminal Justice Systems	3.00	Purple

CJ	255	Juvenile Delinquency & Justice	3.00	Purple
COMM	110	Media and Society	4.00	Purple
COMM	198	Newsgathering Practicum	1.00	Purple
COMM	203	Intercultural Communication	4.00	Purple
COMM	260	Principles of Visual Mass Media	4.00	Purple
DANC	225	Worlds of Dance	3.00	Purple
ED	101	Introduction to Critical Race Theory in Education	3.00	Purple
EET	118	Electricity - Generation, Usage & Green Alternatives	3.00	Purple
EET	125	Perspective on Technology	3.00	Purple
ENG	105	Race, Rhetoric, and Representation	4.00	Purple
ENG	125	International Children's Literature	4.00	Purple
ENG	214	Environmental Humanities	4.00	Purple
ENG	318	Multicultural Literature	2-4	Purple
ENG	319	Animals and Literature	4.00	Purple
ETHN	100	American Racial Minorities	3.00	Purple
ETHN	101	Introduction to Multicultural & Ethnic Studies	3.00	Purple
ETHN	410	Foundations of Oppression	3.00	Purple
ETHN	460	Urban Minority Problems	3.00	Purple
ETHN	470	Women of Color	3.00	Purple
ETHN	486	Racial and Ethnic Politics	3.00	Purple
FCS	100	Personal & Family Living	3.00	Purple
FCS	120	Clothing and People	3.00	Purple
FCS	275	Consumers in the Economy	3.00	Purple
FCS	400	Culturally Diverse Family Systems	3.00	Purple
GEOG	100	Elements of Geography	3.00	Purple
GEOG	102	World Regional Geography	3.00	Purple
GEOG	103	Introductory Cultural Geography	3.00	Purple
GEOG	428	Human Migration	3.00	Purple
GEOL	107	Environmental Justice in Geoscience	4.00	Purple
GWS	110	Introduction to Gender	4.00	Purple
GWS	120	Violence and Gender	4.00	Purple
GWS	220	Sex and Gender Worldwide	4.00	Purple
GWS	222	Gender, Law, & Justice	4.00	Purple
GWS	230	Gender, Race, and Popular Culture	4.00	Purple
GWS	250	Health, Wealth, and Power	4.00	Purple
GWS	411	Sexual Assault Victim Advocacy	4.00	Purple
HIST	155	History of the Family in America	3.00	Purple
HIST	171	World Civilization, 1500-Present	4.00	Purple
HIST	190	United States to 1877	4.00	Purple
HIST	191	United States Since 1877	4.00	Purple
HIST	235	World War II and the Holocaust	4.00	Purple
HIST	244	A History of Taboos and Transgressions	4.00	Purple
HIST	260	Introduction to Traditional East Asian Civilization	4.00	Purple
HIST	369	Sex in American History	4.00	Purple
HIST	408	Women and Gender in European History	4.00	Purple
HIST	410	The Witch Hunts in European History	4.00	Purple
HIST	435	East Asian History: 1945 - The Present	4.00	Purple
HIST	437	African History to 1800	4.00	Purple
HIST	438	Modern Africa	4.00	Purple
HIST	441	Colonial Latin America	4.00	Purple
HIST	442	Modern Latin America	4.00	Purple

HIST	454	Early America to 1763	4.00	Purple
HIST	455	Revolutionary & Early National America 1763-1820	4.00	Purple
HIST	458	U.S. History 1820-1861	4.00	Purple
HIST	459	U.S. History 1861-1900	4.00	Purple
HIST	462	U.S. History, 1900-1945	4.00	Purple
HIST	466	History of U.S. Foreign Relations in the Twentieth Century	4.00	Purple
HIST	467	Rock Music and American Society	4.00	Purple
HIST	470	American Frontier	4.00	Purple
HIST	471	20th Century American West	4.00	Purple
HIST	476	Comparative Slavery and Emancipation	4.00	Purple
HIST	477	African American History	4.00	Purple
HIST	478	America in Vietnam	4.00	Purple
HLTH	211	Human Sexuality in a World of Diversity	3.00	Purple
HLTH	466	Global Health	3.00	Purple
HUM	156	Global Humanities II: The Americas, Australia, & Oceania	4.00	Purple
MUSC	102	Pop Music USA: Jazz to Country to Blues	3.00	Purple
MUSC	103	Pop Music USA: R & B to MTV	3.00	Purple
MUSC	308	Women in Music	3.00	Purple
PSYC	358	Introduction to Cultural Psychology	4.00	Purple
RPLS	250	Therapeutic Recreation Services	3.00	Purple
SCAN	451	Scandinavian Crime Fiction	4.00	Purple
SOC	101	Introduction to Sociology	4.00	Purple
SOC	150	Social Problems	4.00	Purple
SOC	208	Families in Society	4.00	Purple
SOC	209	Sociology of Human Sexualities	4.00	Purple
SOC	360	Indigenous Peoples and Environmental Struggles	4.00	Purple
SOC	404	Sociology of Aging	4.00	Purple
SOC	430	Sociology of Globalization	4.00	Purple
SOC	446	Race, Culture & Ethnicity	4.00	Purple
SOC	460	Environmental Sociology	4.00	Purple
SOC	461	Urban Sociology	4.00	Purple
SOC	463	Social Stratification	4.00	Purple
SOWK	215	Introduction to Social Welfare Services	4.00	Purple
SOWK	255	Global Responses to Human Need	3.00	Purple
SPED	108	Human Services and Disabilities	3.00	Purple
THEA	482	Perspectives in World Performance	3.00	Purple

Graduation Requirement

General Education

Diverse Cultures: Gold

Narrative

To give students learning opportunities to experience diversity with reflection supervised by a faculty member; to assist them in recognizing and responding to conditions of marginalized populations. Marginalized populations refer to specific groups of peoples or individuals that are relegated to the outer edges of society or social standing, both in this country and abroad. Such people are often denied access to resources and privileges available to mainstream society.

Learning Outcomes

Students will be able to:

1. Interact with individuals from diverse populations outside the classroom and to have the opportunity to reflect on such interactions.
2. Demonstrate an acquisition of the basic knowledge and understanding of diversity related concepts so that the student's experience will have meaning and context.
3. Integrate classroom knowledge with experiential learning in analyzing and responding to conditions of marginalized populations.

Students will explore basic concepts such as oppression, prejudice, discrimination, racism and ethnocentrism and responses to each; civil liberties in the context of economic, political, social, religious and educational issues of race, gender, sexual orientation, age, class and disabilities in a pluralistic society.

Satisfying Gold Courses

1. Gold courses require students have experiential encounters with diverse cultures and reflect on those experiences as part of the course requirements.
2. Gold courses must contain sufficient content regarding interactions with diverse populations to establish a context and conceptual base for the student to effectively reflect on the experiences.
3. Gold courses should present content that allows students to explore basic concepts such as oppression, prejudice, discrimination, racism and ethnocentrism and responses to each; civil liberties in the context of economic, political, social, religious and educational issues of race, gender, sexual orientation, age, class and disabilities in a pluralistic society.
4. Courses must meet all three Gold learning outcomes.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AIS	455	Museum Science and Representation	3.00	Gold
AIS	460	Behaving Like Relatives	3.00	Gold
AIS	497	Internship	1-12	Gold
ANTH	280	Engaged Anthropology	3.00	Gold
COMM	217	Experiential Storytelling	4.00	Gold
COMM	417	Experiential Storytelling	4.00	Gold
DHYG	336	Culturally Aware Health Care	3.00	Gold
DHYG	447	Dental Health Study Abroad	1-3	Gold
ETHN	150	Multi-Cultural/Ethnic Experience	3.00	Gold
ETHN	401	Applied Cultural Research	3.00	Gold
GERO	200	Family Dynamics of Aging	3.00	Gold
GWS	225	Queer America	4.00	Gold
GWS	420	Identity Work in Women's Reentry Experiences	4.00	Gold
HIST	232	Islamic Civilizations	4.00	Gold
HIST	280	History in Black and White	4.00	Gold
KSP	150	Exploring Careers in Education	3.00	Gold
KSP	200	Critical Issues in Public Education	3.00	Gold
MRKT	494	Fair Trade Study Abroad in Belize	3.00	Gold
MSL	498	Cultural Understanding and Language Proficiency Internship	3.00	Gold
MUSC	307	Music of the World	3.00	Gold
NURS	301	Cultural Health Immersion: Study Abroad	3.00	Gold
NURS	382	Holistic Nursing Assessment and Practice	4.00	Gold
SOC	420	Identity Work in Women's Reentry Experiences	4.00	Gold
SPAN	396	Experiencing Diverse Cultures	1-3	Gold
SPED	409	Learning and Human Development for Diverse Learners	4.00	Gold

Graduation Requirement

General Education

Goal Area 1: Communication

Narrative

Goal: To develop writers and speakers who use the English language effectively and who read, write, speak, and listen critically. At a base, all students should complete introductory communication requirements early in their college studies. Writing competency is an ongoing process to be reinforced through writing intensive courses and writing across the curriculum. Speaking and listening skills need reinforcement. There are multiple opportunities for interpersonal communication, public speaking and discussion.

Part A: English Composition

Requires one course, 3 credits or more, with a grade of at least “P” or “C” (2.0). A grade of “C-” does not satisfy this goal area.

Goal: To introduce students to writing concepts and strategies with broad applicability. Students will write for a range of situations and have opportunities to revise and reflect on their work. Emphasis will be placed on writing for academic contexts. Students will learn to access, evaluate, synthesize, and document sources, among other academic research skills.

Students will be able to:

1. generate ideas, draft, revise, and edit their work;
2. write for various audiences, purposes, and genres;
3. research effectively to enrich their intellectual contributions in writing;
4. integrate sources into their work, adhering to summary, paraphrase, quotation and citation conventions;
5. use reflection to advance their writing development;
6. employ syntax and usage appropriate to academic disciplines and the professional world.

English Composition Placement: Students who need to fulfill General Education Goal Area 1, Part A are placed in a Composition course or course sequence can demonstrate readiness to succeed following the standards in the **English Composition Placement** policy.

Part B: Speech and Oral Reasoning

(Requires one course, 3 credits or more)

Goal: To develop skills necessary for reasoned communication. Courses in this goal area will require individual public speaking which is critiqued by the instructor. Speaking and reasoning competency is an ongoing process which needs to be reinforced throughout the curriculum.

Students will be able to:

1. understand/demonstrate communication processes through invention, organization, drafting, revision, editing and presentation;
2. participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding;
3. analyze, evaluate, and synthesize in a responsible manner material from diverse sources and points of view;
4. select appropriate communication choices for specific audiences;
5. construct logical and coherent arguments;
6. use authority, point of view, and individual voice and style in communications;
7. employ syntax, usage and analytical techniques appropriate to academic disciplines and the professional world.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
CDIS	201	Observation of Human Communication	3.00	1B
COMM	100	Fundamentals of Communication	3.00	1B
COMM	102	Public Speaking	3.00	1B
COMM	220	Speech and Debate	0-4	1B
ENG	101	Foundations of Writing & Rhetoric	4.00	1A
HIST	250	Riot and Revolution in History	4.00	1B
HIST	268	History and American Democracy	4.00	1B
POL	234	Model United Nations	4.00	1B
RPLS	276	Recreation Leadership	3.00	1B

GENERAL EDUCATION

Goal Area 2: Critical Thinking

Narrative

Requires completion of the rest of the General Education Program or one course.

Goal: To develop critical thinking, communication, and problem-solving skills. Courses in this goal area must focus on skill development and throughout the course will provide opportunities to exercise skills although the exercise of skills requires a subject matter, the emphasis in this goal area will be on skill development. The skills will not be ones that are specific to the practice of a particular discipline or area of inquiry but rather will be skills that are common to different disciplines and different areas of inquiry.

Students will be able to:

1. gather and analyze information of various kinds, employing formal or informal tools to represent information in ways useful for solving problems;
2. weigh evidence for and against hypotheses;
3. recognize, construct, and evaluate arguments;
4. apply appropriate critical and evaluative principles to texts, documents, or works--one's own or others'--in oral, visual, or written mediums.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AST	115	Life in the Universe	2.00	02

AST	115W	Life in the Universe	2.00	02
CHEM	111	Chemistry of Life Process Part II (Organic & Biochemistry)	5.00	02
CHEM	191	Chemistry Applications	3.00	02
CHEM	201	General Chemistry I	5.00	02
COMM	105W	Interpersonal Communication	4.00	02
ECON	103W	The Economics of Women's Issues and Public Policy in the United States	3.00	02
ECON	207	Business Statistics	4.00	02
ENG	201W	Writing Technologies	4.00	02
ENG	271W	Technical Communication	4.00	02
ENG	272W	Business Communication	4.00	02
FCS	101	Introduction to Family Consumer Science	3.00	02
GERO	200	Family Dynamics of Aging	3.00	02
GERO	200W	Family Dynamics of Aging	3.00	02
GWS	230	Gender, Race, and Popular Culture	4.00	02
HIST	244	A History of Taboos and Transgressions	4.00	02
HIST	246W	Sports and Games in History	4.00	02
HLTH	212	Consumer Health	3.00	02
KSP	150	Exploring Careers in Education	3.00	02
KSP	200	Critical Issues in Public Education	3.00	02
MATH	290	Foundations of Mathematics	4.00	02
PHIL	110	Logic and Critical Thinking	3.00	02
PHIL	112W	Scientific Reasoning	3.00	02
PHYS	211	Principles of Physics I	4.00	02
PHYS	220	Skills for Introductory Physics	2.00	02
PHYS	221	General Physics I	4.00	02
POL	103W	Thinking About Politics	4.00	02
PSYC	103W	Psychology Today	3.00	02
PSYC	150	Science of Learning for College Student Success	2.00	02
SBS	100			02
SOC	214W	Animals and Society	4.00	02
STAT	154	Elementary Statistics	4.00	02

General Education

Goal Area 3: Natural Science

Narrative

Requires two courses from different disciplines, 6 credits or more. At least one course must have a laboratory.

Goal: To improve students' understanding of natural science principles and of the methods of scientific inquiry (i.e., the ways in which scientists investigate natural science phenomena). Students should be encouraged to study both the biological and physical sciences.

Students will be able to:

1. develop understanding of scientific theories;
2. formulate and test hypotheses in either laboratory, simulation, or field experiences;
3. communicate his/her experimental findings and interpretations both orally and in writing;
4. apply the natural science perspective to society issues.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
ANTH	120	Forensic Science: An Anthropological Approach	4	03
ANTH	210	Introduction to Archaeology	4.00	03
ANTH	220	Human Origins	4.00	03
AST	101	Introduction to Astronomy	3.00	03
AST	102	Introduction to the Planets	3.00	03

AST	115	Life in the Universe	2.00	03
AST	115W	Life in the Universe	2.00	03
AST	125	Observational Astronomy	3.00	03
BIOL	100	Our Natural World	4.00	03
BIOL	102	Biology of Women	3.00	03
BIOL	104	Introduction to Soil Science	4.00	03
BIOL	105	General Biology I	4.00	03
BIOL	270	Microbiology	4.00	03
BIOL	271	Principles of Microbiology	4.00	03
CHEM	100	Chemistry in Society	4.00	03
CHEM	104	Introduction to Chemistry	3.00	03
CHEM	106	Chemistry of Life Process Part I (General)	3.00	03
CHEM	111	Chemistry of Life Process Part II (Organic & Biochemistry)	5.00	03
CHEM	131	Forensic Science	3.00	03
CHEM	134	Mind Altering Substances	3.00	03
CHEM	191	Chemistry Applications	3.00	03
CHEM	201	General Chemistry I	5.00	03
EET	112	Elementary Electricity and Electronics	3.00	03
EET	118	Electricity - Generation, Usage & Green Alternatives	3.00	03
FCS	140	Introduction to Nutrition	3.00	03
GEOG	101	Introductory Physical Geography	4.00	03
GEOG	105	Introduction to Geospatial Technologies	3.00	03
GEOL	100	Our Geologic Environment	3-4	03
GEOL	104	Introduction to Soil Science	4.00	03
GEOL	107	Environmental Justice in Geoscience	4.00	03
GEOL	108	Oceans of the World	3.00	03
GEOL	121	Physical Geology	4.00	03
GEOL	122	Earth History	4.00	03
PHYS	101	Introductory Physics	3.00	03
PHYS	105	Time, Atomic Clocks, and Relativity	3.00	03
PHYS	211	Principles of Physics I	4.00	03
PHYS	220	Skills for Introductory Physics	2.00	03
PHYS	221	General Physics I	4.00	03
RPLS	175	Natural Resources and Conservation in RPLS	3.00	03

General Education

Goal Area 4: Mathematical/Logical Reasoning

Narrative

Requires one course, 3 credits or more, with a grade of at least “P” or “C”, i.e., 2.0. A grade of “C-” does not satisfy this goal area.

Goal: To increase students’ knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers.

Students will be able to:

1. illustrate historical and contemporary applications of mathematical/logical systems;
2. clearly express mathematical/logical ideas in writing;
3. explain what constitutes a valid mathematical/logical argument (proof);
4. apply higher-order problem-solving and/or modeling strategies.

Mathematics and Statistics Placement: Students seeking enrollment in MATH 112 College Algebra, MATH 201 Elements of Mathematics, or STAT 154 Elementary Statistics must demonstrate readiness to succeed in the course following the standards in the **Mathematics and Statistics Placement** policy.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
CIS	115	Big Ideas of Computer Science	4.00	04
ECON	207	Business Statistics	4.00	04
MATH	110	Perspectives in Mathematics	3.00	04
MATH	112	College Algebra	4.00	04
MATH	113	Trigonometry	3.00	04
MATH	115	Precalculus Mathematics	4.00	04
MATH	121	Calculus I	4.00	04
MATH	130	Finite Mathematics and Introductory Calculus	4.00	04
MATH	180	Mathematics for Computer Science	4.00	04
MATH	181	Intuitive Calculus	3.00	04
MATH	201	Elements of Mathematics I	3.00	04
PHIL	110	Logic and Critical Thinking	3.00	04
PHIL	112W	Scientific Reasoning	3.00	04
POL	221	Quantitative Methods in the Social Sciences	4.00	04
SOC	202	Introductory Social Statistics	4.00	04
STAT	154	Elementary Statistics	4.00	04

General Education

Goal Area 5: History and The Social and Behavioral Sciences

Narrative

Requires two courses from different disciplines, 6 credits or more

Goal: To increase students' knowledge of how historians and social and behavioral scientists discover, describe, and explain the behaviors and interactions among individuals, groups, institutions, events and ideas and to challenge students to examine the implications of this knowledge and its interconnection with action and living an informed life.

Students will be able to:

1. employ the methods and data that historians and social and behavioral scientists use to investigate the human condition;
2. examine social institutions and processes across a range of historical periods and cultures;
3. use and critique alternative explanatory systems or theories;
4. develop and communicate alternative explanations or solutions for contemporary social issues.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AIS	101	Introduction to American Indigenous Studies	3	05
AIS	130	Introduction to Indigenous Education	3.00	05
AIS	210W	Oral Traditions	3.00	05
AIS	211	Native America to 1900	3.00	05
AIS	212	Native America 1900 to Present	3.00	05
AIS	220W	Introduction to Tribal Sovereignty	3.00	05
AIS	230W	American Indians of Minnesota	3.00	05
AIS	240W	American Indian Women	3.00	05
ANTH	101	Introduction to Anthropology	4.00	05
ANTH	102	Ancient Peoples	4.00	05
ANTH	240	Language and Culture	4.00	05
ANTH	250W	Portraits of Culture	4.00	05
ANTH	260	Vampires, Werewolves, and Zombies: Folklore of Fear	4	05
ANTH	261	Taboos, Tattoos, and T-Shirts: Culture and Body Art	4	05
ANTH	269	Anthropology of Sex	4.00	05
CJ	101	Introduction to Criminal Justice Systems	3.00	05
CJ	255	Juvenile Delinquency & Justice	3.00	05

ECON	100	An Introduction to the U.S. Economy	3.00	05
ECON	103W	The Economics of Women's Issues and Public Policy in the United States	3.00	05
ECON	201	Principles of Macroeconomics	3.00	05
ECON	202	Principles of Microeconomics	3.00	05
ETHN	100	American Racial Minorities	3.00	05
ETHN	101	Introduction to Multicultural & Ethnic Studies	3.00	05
ETHN	201W	Perspectives on African Americans	3	05
ETHN	203W	Perspectives on Asian Americans	3.00	05
ETHN	204W	Perspectives on Latinos/Hispanics	3.00	05
ETHN	220W	Civil Rights in the U.S.	3.00	05
ETHN	440	Asian American Studies	3.00	05
FCS	100	Personal & Family Living	3.00	05
GEOG	102	World Regional Geography	3.00	05
GEOG	103	Introductory Cultural Geography	3.00	05
GWS	110	Introduction to Gender	4.00	05
GWS	110W	Introduction to Gender	4.00	05
GWS	222	Gender, Law, & Justice	4.00	05
GWS	225	Queer America	4.00	05
GWS	225W	Queer America	4.00	05
GWS	250	Health, Wealth, and Power	4.00	05
HIST	155	History of the Family in America	3.00	05
HIST	170	Ancient World Civilization to 1500	4.00	05
HIST	170W	Ancient World Civilization to 1500	4.00	05
HIST	171	World Civilization, 1500-Present	4.00	05
HIST	171W	World Civilization, 1500-Present	4.00	05
HIST	180	European History to 1648	4.00	05
HIST	180W	European History to 1648	4.00	05
HIST	181	European History: 1648 to the Present	4.00	05
HIST	181W	European History: 1648 to the Present	4.00	05
HIST	190	United States to 1877	4.00	05
HIST	190W	United States to 1877	4.00	05
HIST	191	United States Since 1877	4.00	05
HIST	191W	United States Since 1877	4.00	05
HIST	260	Introduction to Traditional East Asian Civilization	4.00	05
HIST	260W	Introduction to Traditional East Asian Civilization	4.00	05
HLTH	225	Introduction to Alcohol and Drug Studies	3.00	05
HLTH	240	Drug Education	3.00	05
KSP	235	Human Development	3.00	05
MRKT	100	Foundations of Business Concepts	3.00	05
MSL	252	The Evolution of American Warfare	3.00	05
MUSE	200W	Introduction to Museum Studies	4.00	05
POL	100	Introduction to Politics	4.00	05
POL	104	Understanding the U.S. Constitution	4.00	05
POL	111	United States Government	4.00	05
PSYC	101	Introduction to Psychological Science	4.00	05
PSYC	206	Introduction to Cognitive Science	4.00	05
RPLS	165	Introduction to Community Tourism and Travel	3.00	05
SOC	101	Introduction to Sociology	4.00	05
SOC	150	Social Problems	4.00	05
SOC	208	Families in Society	4.00	05
SOC	209	Sociology of Human Sexualities	4.00	05

SOC	255	Juvenile Delinquency	4.00	05
SOWK	215	Introduction to Social Welfare Services	4.00	05
SOWK	215W	Introduction to Social Welfare Services	4	05
SOWK	255	Global Responses to Human Need	3.00	05
URBS	100	Introduction to the City	3.00	05
URBS	150	Sustainable Communities	3.00	05

General Education

Goal Area 6: Humanities and The Arts

Narrative

Requires two courses from different disciplines, 6 credits or more.

Goal: To expand students' knowledge of the human condition and human cultures, especially in relation to behavior, ideas, and values expressed in works of human imagination and thought. Through study in disciplines such as literature, philosophy, and the fine arts, students will engage in critical analysis, form aesthetic judgments, and develop an appreciation of the arts and humanities as fundamental to the health and survival of any society. Students should have experiences in both the arts and humanities.

Students will be able to:

1. demonstrate awareness of the scope and variety of works in the arts and humanities;
2. understand those works as expressions of individual and human values within an historical and social context;
3. respond critically to works in the arts and humanities;
4. engage in the creative process or interpretive performance;
5. articulate an informed personal reaction to works in the arts and humanities.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
ART	100	Elements and Principles of Art	3.00	06
ART	160	Introduction to Visual Culture	3.00	06
ART	225	Developing Creativity: Approaches and Techniques	3	06
ART	231	Mixed Media	3.00	06
ART	260	Art History Survey I	3.00	06
ART	261	Art History Survey II	3.00	06
ART	265W	Art As Politics	3.00	06
ART	275	Introduction to Photography	3.00	06
CHIN	101	Elementary Mandarin I	5.00	06
CHIN	102	Elementary Mandarin II	5.00	06
CIS	113	Health Humanities and Health Informatics	4.00	06
COMM	260	Principles of Visual Mass Media	4.00	06
COMM	280	Social Media and Society	4.00	06
CS	201W	Artificial Intelligence & Science Fiction	4.00	06
DAK	101	Elementary Dakota I	4.00	06
DAK	102	Elementary Dakota II	4.00	06
DAK	201	Intermediate Dakota I	4.00	06
DAK	202	Intermediate Dakota II	4.00	06
DANC	120	Introduction to Dance	3.00	06
DANC	120W	Introduction to Dance	3.00	06
EET	125	Perspective on Technology	3.00	06
ENG	110	Introduction to Literature	4.00	06
ENG	112W	Why Literature Matters	4.00	06
ENG	125	International Children's Literature	4.00	06
ENG	146	Introduction to Shakespeare	4.00	06
ENG	211W	Literature and Human Diversity	4.00	06
ENG	212W	World Literature	4.00	06
ENG	213W	Literature and Ethics	4.00	06

ENG	215	Topics in Literature	2-4	06
FILM	110	Film Appreciation	4.00	06
FILM	114	Introduction to Film	4.00	06
FILM	210W	Film Genres	4.00	06
FILM	214	Topics in Film Studies	1-4	06
FILM	216W	Writing About Film	4.00	06
FILM	217	Introduction to Film Production	4.00	06
FREN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	06
GER	150W	The German-Speaking Countries: An Interdisciplinary Introduction	4.00	06
GER	280W	Parallel Worlds: Exploring Cultures & Symbols	4	06
GWS	230	Gender, Race, and Popular Culture	4.00	06
HUM	101W	Introduction to Humanities and the Search for Meaning	4.00	06
HUM	150	Western Humanities I: Cave Paintings to Cathedrals	4.00	06
HUM	151	Western Humanities II: da Vinci to the Digital Age	4.00	06
HUM	155	Global Humanities I: Asia & Africa	4.00	06
HUM	156	Global Humanities II: The Americas, Australia, & Oceania	4.00	06
HUM	250	Perspectives in Humanities	2-4	06
HUM	250W	Perspectives in Humanities	4.00	06
HUM	280	Humanities Traditions	2-4	06
HUM	280W	Humanities Traditions	4.00	06
HUM	281W	Human Diversity and Humanities Traditions	4.00	06
HUM	282W	Global Perspectives and Humanities Traditions	4.00	06
MUSC	101	Introduction to Music	3.00	06
MUSC	102	Pop Music USA: Jazz to Country to Blues	3.00	06
MUSC	103	Pop Music USA: R & B to MTV	3.00	06
MUSC	119	Class Piano I	3.00	06
MUSC	120	Music Money and Success	3.00	06
MUSC	209	Music Travel Tour	1-3	06
MUSC	307	Music of the World	3.00	06
MUSP	102	University Chorale	0-1	06
MUSP	103	Chamber Singers	0-1	06
MUSP	108	Contemporary Vocal Ensemble	0-1	06
MUSP	121	Wind Ensemble	0-1	06
MUSP	122	Symphonic Band	0-1	06
MUSP	123	University Orchestra	0-1	06
MUSP	125	Jazz Ensemble	0-1	06
MUSP	126	Contemporary Instrumental Ensemble	0-1	06
MUSP	131	Maverick Machine Athletic Band	0-1	06
MUSP	133	Percussion Ensemble	0-1	06
MUSP	177	Group Instruction in Guitar	3.00	06
MUSP	211	Music Productions for the Stage and Screen	0-1	06
PHIL	100W	Introduction to Philosophy	3.00	06
PHIL	101W	Philosophical Problem: The Mind-Body Problem	3.00	06
PHIL	115W	Philosophy of Race, Class and Gender	3.00	06
PHIL	120W	Introduction to Ethics	3.00	06
PHIL	122W	Introduction to Asian Philosophy	3.00	06
PHIL	205W	Culture, Identity, and Diversity	3.00	06
PHIL	222W	Medical Ethics	3.00	06
PHIL	224	Business Ethics	3.00	06
PHIL	224W	Business Ethics	3.00	06
PHIL	240W	Law, Justice & Society	3.00	06

SCAN	150W	The Nordic Countries: Interdisciplinary Introduction	4.00	06
SCAN	251W	Scandinavian Cultures: The Sami	4.00	06
SCAN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	06
SPAN	101	Elementary Spanish I	4.00	06
SPAN	102	Elementary Spanish II	4.00	06
SPAN	201	Intermediate Spanish I	4.00	06
SPAN	202	Intermediate Spanish II	4.00	06
SPAN	210W	Composition and Conversation Workshop	4.00	06
SPAN	250	Spanish Through Latin Dancing	4.00	06
THEA	100	Introduction to Theatre	3.00	06
THEA	101	Acting for Everyone	3.00	06
THEA	285W	Theatre of Diversity	3.00	06
URBS	110	The City: Design and Architecture	3.00	06
WLC	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	06

General Education

Goal Area 7: Human Diversity

Narrative

Requires one course, 3 credits or more.

Goal: To increase students' understanding of individual and group differences, emphasizing the dynamics of race, gender, sexual orientation, age, class, and/ or disabilities in the history and culture of diverse groups in the United States; the contributions of pluralism to United States society and culture; and issues-- economic, political, social, cultural, artistic, humanistic, and education traditions-- that surround such diversity. Students should be able to evaluate the United States' historical and contemporary responses to group differences.

Students will be able to:

1. understand the development of and the changing meanings of group identities in the United States' history and cultures;
2. demonstrate an awareness of the individual and institutional dynamics of unequal power relations between groups in contemporary society;
3. analyze and evaluate their own attitudes, behaviors, concepts, and beliefs regarding diversity, racism, and bigotry;
4. describe and discuss the experience and contributions (political, social, economic, artistic, humanistic, etc.) of the many groups that shape American society and culture, in particular those groups which have suffered discrimination and exclusion;
5. demonstrate communication skills necessary for living and working effectively in a society with great population diversity.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AIS	101	Introduction to American Indigenous Studies	3	07
AIS	112	Elementary Ojibwe I	4.00	07
AIS	113	Elementary Ojibwe II	4.00	07
AIS	210W	Oral Traditions	3.00	07
AIS	211	Native America to 1900	3.00	07
AIS	212	Native America 1900 to Present	3.00	07
AIS	220W	Introduction to Tribal Sovereignty	3.00	07
AIS	230W	American Indians of Minnesota	3.00	07
AIS	240W	American Indian Women	3.00	07
ANTH	245	The Social Life of Swearing	4.00	07
ANTH	269	Anthropology of Sex	4.00	07
ANTH	280	Engaged Anthropology	3.00	07
ART	225	Developing Creativity: Approaches and Techniques	3	07
CDIS	290	Introduction to Communication Disorders	3.00	07
CIS	113	Health Humanities and Health Informatics	4.00	07
COMM	203	Intercultural Communication	4.00	07
COMM	260	Principles of Visual Mass Media	4.00	07
ED	101	Introduction to Critical Race Theory in Education	3.00	07
ELE	222W	Human Relations in a Multicultural Society	4.00	07

ENG	105	Race, Rhetoric, and Representation	4.00	07
ENG	211W	Literature and Human Diversity	4.00	07
ETHN	100	American Racial Minorities	3.00	07
ETHN	101	Introduction to Multicultural & Ethnic Studies	3.00	07
ETHN	150	Multi-Cultural/Ethnic Experience	3.00	07
ETHN	200	Interracial/Interethnic Dating/Marriage	3.00	07
ETHN	201W	Perspectives on African Americans	3	07
ETHN	203W	Perspectives on Asian Americans	3.00	07
ETHN	204W	Perspectives on Latinos/Hispanics	3.00	07
GERO	200	Family Dynamics of Aging	3.00	07
GERO	200W	Family Dynamics of Aging	3.00	07
GWS	110	Introduction to Gender	4.00	07
GWS	110W	Introduction to Gender	4.00	07
GWS	225	Queer America	4.00	07
GWS	225W	Queer America	4.00	07
HIST	155	History of the Family in America	3.00	07
HIST	190	United States to 1877	4.00	07
HIST	190W	United States to 1877	4.00	07
HIST	191	United States Since 1877	4.00	07
HIST	191W	United States Since 1877	4.00	07
HIST	232	Islamic Civilizations	4.00	07
HIST	246W	Sports and Games in History	4.00	07
HLTH	211	Human Sexuality in a World of Diversity	3.00	07
HUM	281W	Human Diversity and Humanities Traditions	4.00	07
KSP	220W	Human Relations in a Multicultural Society	3.00	07
MUSC	102	Pop Music USA: Jazz to Country to Blues	3.00	07
MUSC	103	Pop Music USA: R & B to MTV	3.00	07
PHIL	115W	Philosophy of Race, Class and Gender	3.00	07
PSYC	219	Psychology of Diversity and Inclusion	4.00	07
REHB	110W	Sensitivity to Disability	3.00	07
SOC	150	Social Problems	4.00	07
SOC	208	Families in Society	4.00	07
SOC	209	Sociology of Human Sexualities	4.00	07
SPED	108	Human Services and Disabilities	3.00	07
THEA	285W	Theatre of Diversity	3.00	07

General Education

Goal Area 8: Global Perspectives

Narrative

Requires one course, 3 credits or more.

Goal: To increase students' understanding of the growing interdependence of nations, traditions and peoples and develop their ability to apply a comparative perspective to cross-cultural social, economic, and political experiences.

Students will be able to:

1. describe, analyze, and evaluate political, economic, humanistic, artistic, social and cultural elements which influence relations of nations and peoples in their historical and contemporary dimensions;
2. demonstrate knowledge of cultural, social, religious and linguistic differences;
3. analyze specific international problems illustrating cultural, economic, artistic, humanistic, social, and political differences which affect their solution;
4. understand the role of a world citizen and the responsibility world citizens share for their common global future.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AIS	112	Elementary Ojibwe I	4.00	08

AIS	113	Elementary Ojibwe II	4.00	08
ANTH	101	Introduction to Anthropology	4.00	08
ANTH	230	Peoples and Cultures of the World	4.00	08
ANTH	240	Language and Culture	4.00	08
ANTH	260	Vampires, Werewolves, and Zombies: Folklore of Fear	4	08
ANTH	261	Taboos, Tattoos, and T-Shirts: Culture and Body Art	4	08
ART	160	Introduction to Visual Culture	3.00	08
ART	260	Art History Survey I	3.00	08
ART	261	Art History Survey II	3.00	08
ART	265W	Art As Politics	3.00	08
BIOL	100	Our Natural World	4.00	08
CHIN	101	Elementary Mandarin I	5.00	08
CHIN	102	Elementary Mandarin II	5.00	08
CJ	225	History of Prisons and Punishment	3.00	08
COMM	203	Intercultural Communication	4.00	08
COMM	217	Experiential Storytelling	4.00	08
DAK	101	Elementary Dakota I	4.00	08
DAK	102	Elementary Dakota II	4.00	08
DAK	201	Intermediate Dakota I	4.00	08
DAK	202	Intermediate Dakota II	4.00	08
DANC	120	Introduction to Dance	3.00	08
DANC	120W	Introduction to Dance	3.00	08
DANC	225	Worlds of Dance	3.00	08
EET	118	Electricity - Generation, Usage & Green Alternatives	3.00	08
EET	125	Perspective on Technology	3.00	08
ENG	125	International Children's Literature	4.00	08
ENG	146	Introduction to Shakespeare	4.00	08
ENG	212W	World Literature	4.00	08
ENVR	101	Perspectives in Environmental Science	4.00	08
FREN	101	Elementary French I	5.00	08
FREN	102	Elementary French II	5.00	08
FREN	201	Intermediate French I	4.00	08
FREN	202	Intermediate French II	4.00	08
FREN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	08
GEOG	100	Elements of Geography	3.00	08
GEOG	102	World Regional Geography	3.00	08
GEOG	103	Introductory Cultural Geography	3.00	08
GER	101	Elementary German I	4.00	08
GER	102	Elementary German II	4.00	08
GER	150W	The German-Speaking Countries: An Interdisciplinary Introduction	4.00	08
GER	201	Intermediate German I	4.00	08
GER	202	Intermediate German II	4.00	08
GER	280W	Parallel Worlds: Exploring Cultures & Symbols	4	08
GWS	220	Sex and Gender Worldwide	4.00	08
GWS	220W	Sex and Gender Worldwide	4.00	08
HIST	170	Ancient World Civilization to 1500	4.00	08
HIST	170W	Ancient World Civilization to 1500	4.00	08
HIST	171	World Civilization, 1500-Present	4.00	08
HIST	171W	World Civilization, 1500-Present	4.00	08
HIST	232	Islamic Civilizations	4.00	08
HIST	235	World War II and the Holocaust	4.00	08

HUM	101W	Introduction to Humanities and the Search for Meaning	4.00	08
HUM	155	Global Humanities I: Asia & Africa	4.00	08
HUM	156	Global Humanities II: The Americas, Australia, & Oceania	4.00	08
HUM	282W	Global Perspectives and Humanities Traditions	4.00	08
MUSC	307	Music of the World	3.00	08
MUSE	200W	Introduction to Museum Studies	4.00	08
PHIL	122W	Introduction to Asian Philosophy	3.00	08
PHIL	205W	Culture, Identity, and Diversity	3.00	08
POL	106	Politics in the World Community	4.00	08
POL	234	Model United Nations	4.00	08
SCAN	101	Elementary Norwegian I	4.00	08
SCAN	102	Elementary Norwegian II	4.00	08
SCAN	111	Elementary Swedish I	4.00	08
SCAN	112	Elementary Swedish II	4.00	08
SCAN	150W	The Nordic Countries: Interdisciplinary Introduction	4.00	08
SCAN	251W	Scandinavian Cultures: The Sami	4.00	08
SCAN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	08
SOC	101	Introduction to Sociology	4.00	08
SOWK	255	Global Responses to Human Need	3.00	08
SPAN	101	Elementary Spanish I	4.00	08
SPAN	102	Elementary Spanish II	4.00	08
SPAN	201	Intermediate Spanish I	4.00	08
SPAN	202	Intermediate Spanish II	4.00	08
SPAN	210W	Composition and Conversation Workshop	4.00	08
URBS	100	Introduction to the City	3.00	08
WLC	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	08

General Education

Goal Area 9: Ethical and Civic Responsibility

Narrative

Requires one course, 3 credits or more.

Goal: To develop students' capacity to identify, discuss and reflect upon the ethical dimensions of political, social, and personal life and to understand the ways in which they can exercise responsible and productive citizenship. While there are diverse views of social justice or the common good in a pluralistic society, students should learn that responsible citizenship requires them to develop skills to understand their own and others positions, be part of the free exchange of ideas, and function as public minded citizens.

Students will be able to:

1. examine, articulate, and apply their own ethical views;
2. understand and apply core concepts (e.g., politics, rights and obligations, justice, liberty) to specific issues;
3. analyze and reflect on the ethical dimensions of legal, social, and scientific issues;
4. recognize the diversity of political motivations and interests of others;
5. identify ways to exercise the rights and responsibilities of citizenship.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AIS	130	Introduction to Indigenous Education	3.00	09
ANTH	245	The Social Life of Swearing	4.00	09
CHEM	131	Forensic Science	3.00	09
CIS	100	Introduction to Computing and Applications	4	09
CIS	202W	Computers in Society	4.00	09
CJ	101	Introduction to Criminal Justice Systems	3.00	09
CJ	255	Juvenile Delinquency & Justice	3.00	09
COMM	110	Media and Society	4.00	09

COMM	242	Preparing for Advocacy	4.00	09
COMM	280	Social Media and Society	4.00	09
CS	201W	Artificial Intelligence & Science Fiction	4.00	09
ED	101	Introduction to Critical Race Theory in Education	3.00	09
ENG	213W	Literature and Ethics	4.00	09
ENG	214	Environmental Humanities	4.00	09
GWS	120	Violence and Gender	4.00	09
GWS	120W	Violence and Gender	4.00	09
GWS	220	Sex and Gender Worldwide	4.00	09
GWS	220W	Sex and Gender Worldwide	4.00	09
GWS	222	Gender, Law, & Justice	4.00	09
GWS	250	Health, Wealth, and Power	4.00	09
HIST	181	European History: 1648 to the Present	4.00	09
HIST	181W	European History: 1648 to the Present	4.00	09
HIST	235	World War II and the Holocaust	4.00	09
HIST	244	A History of Taboos and Transgressions	4.00	09
HIST	250	Riot and Revolution in History	4.00	09
HIST	268	History and American Democracy	4.00	09
HIST	280	History in Black and White	4.00	09
KSP	200	Critical Issues in Public Education	3.00	09
NPL	273	Introduction to the Nonprofit Sector	3.00	09
PHIL	120W	Introduction to Ethics	3.00	09
PHIL	222W	Medical Ethics	3.00	09
PHIL	224	Business Ethics	3.00	09
PHIL	224W	Business Ethics	3.00	09
PHIL	226W	Environmental Ethics	3.00	09
PHIL	240W	Law, Justice & Society	3.00	09
POL	101	Introduction to Public Life	4.00	09
POL	111	United States Government	4.00	09
RPLS	100	Introduction to Recreation and Parks Leadership Studies	3.00	09
SOC	214W	Animals and Society	4.00	09
SOC	241	Social Deviance	4.00	09
SOC	255	Juvenile Delinquency	4.00	09
SOWK	215	Introduction to Social Welfare Services	4.00	09
SOWK	215W	Introduction to Social Welfare Services	4	09
SPED	108	Human Services and Disabilities	3.00	09
URBS	230	Community Leadership	3.00	09
URBS	230W	Community Leadership	3.00	09

General Education

Goal Area 10: People and The Environment

Narrative

Requires one course, 3 credits or more.

Goal: To increase students' understanding of today's complex environmental challenges. Students will examine the interrelatedness of human society and the natural environment. Knowledge of both bio-physical principles and psychosocial cultural systems is the foundation for integrative and critical thinking about environmental issues.

Students will be able to:

1. explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems;
2. discern and analyze patterns and interrelationships of the bio-physical and psycho-social cultural systems;
3. critically discern and analyze individual, social, and ecological dimensions of health;

4. describe the basic institutional arrangements (social, legal, political, economic, health, ethical, religious) that are evolving to deal with environmental and natural resource challenges;
5. evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions;
6. propose and assess alternative solutions to environmental problems;
7. articulate and defend the actions they would take on various environmental issues.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
ANTH	102	Ancient Peoples	4.00	10
ANTH	210	Introduction to Archaeology	4.00	10
BIOL	104	Introduction to Soil Science	4.00	10
ENG	214	Environmental Humanities	4.00	10
ENVR	101	Perspectives in Environmental Science	4.00	10
FCS	280	Food Systems and Policy	3.00	10
GEOG	100	Elements of Geography	3.00	10
GEOG	101	Introductory Physical Geography	4.00	10
GEOG	105	Introduction to Geospatial Technologies	3.00	10
GEOG	210W	Landscapes and Places	3.00	10
GEOL	100	Our Geologic Environment	3-4	10
GEOL	104	Introduction to Soil Science	4.00	10
GEOL	107	Environmental Justice in Geoscience	4.00	10
GEOL	108	Oceans of the World	3.00	10
GEOL	121	Physical Geology	4.00	10
HIST	180	European History to 1648	4.00	10
HIST	180W	European History to 1648	4.00	10
HIST	260	Introduction to Traditional East Asian Civilization	4.00	10
HIST	260W	Introduction to Traditional East Asian Civilization	4.00	10
HLTH	101	Health and the Environment	3.00	10
PHIL	226W	Environmental Ethics	3.00	10
RPLS	182	Wildlife as a Recreational Resource	3.00	10
URBS	150	Sustainable Communities	3.00	10

General Education

Goal Area 11: Performance and Participation

Narrative

Requires 2-3 credits.

Goal: To prepare students for responsible and effective participation in groups and communities.

1. Students will be able to:
2. participate effectively in a variety of artistic, education, political, recreational, health and public service, or social service settings;
3. interact with others of another culture in its indigenous setting through a structured experience;
4. participate cooperatively in group athletic activity or artistic performance.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
ANTH	280	Engaged Anthropology	3.00	11
CDIS	205	Beginning American Sign Language - Level I	3.00	11
COMM	220	Speech and Debate	0-4	11
CSP	110	Decision Making for Career and Life	3.00	11
CW	242W	Introduction To Creative Writing	4.00	11
DANC	123	Jazz Dance I	2.00	11
DANC	125	Afro-Caribbean Dance Forms	2.00	11
DANC	126	Ballet I	2.00	11
DANC	127	Tap Dance I	2.00	11

DANC	128	Contemporary Dance I	2.00	11
DANC	223	Jazz Dance II	2.00	11
DANC	225	Worlds of Dance	3.00	11
DANC	226	Ballet II	2.00	11
DANC	227	Tap Dance II	2.00	11
DANC	228	Contemporary Dance II	2.00	11
EXED	202	Introduction to Experiential Education	3.00	11
FILM	217	Introduction to Film Production	4.00	11
HIST	280	History in Black and White	4.00	11
HLTH	209	Basic First Aid & CPR	1.00	11
HLTH	210	Emergency Medical Responder First Aid & CPR	3.00	11
HP	102	Individualized Exercise	1.00	11
HP	103	Fitness for Living	1.00	11
HP	105	Beginner Swimming	1.00	11
HP	106	Disc Golf	1.00	11
HP	113	Introduction to Bowling	1.00	11
HP	114	Introduction to Billiards	1.00	11
HP	117	Aerobic Conditioning	1.00	11
HP	130	Self-Defense for Women	1.00	11
HP	146	Intercollegiate Bowling	1.00	11
HP	147	Intercollegiate Cross Country	1.00	11
HP	148	Intercollegiate Softball	1.00	11
HP	149	Intercollegiate Volleyball	1.00	11
HP	150	Intercollegiate Wrestling	1.00	11
HP	152	Intercollegiate Track and Field	1.00	11
HP	153	Intercollegiate Swimming	1.00	11
HP	154	Intercollegiate Football	1.00	11
HP	155	Intercollegiate Basketball	1.00	11
HP	156	Intercollegiate Baseball	1.00	11
HP	157	Intercollegiate Golf	1.00	11
HP	158	Intercollegiate Tennis	1.00	11
HP	159	Intercollegiate Hockey	1.00	11
HP	161	Intercollegiate Soccer	1.00	11
HP	166	Team Game Skills	1.00	11
HP	171	Introduction to Racquetball	1.00	11
HP	172	Introduction to Tennis	1.00	11
HP	173	Introduction to Badminton	1.00	11
HP	175	Fitness Activities	1.00	11
HP	176	Introduction to Pickleball	1.00	11
HP	177	Introduction to Golf	1.00	11
HP	179	Downhill Skiing	1.00	11
HP	180	Introduction to Handball	1.00	11
HP	181	Advanced Handball	1.00	11
HP	182	Aquatic Skills	1.00	11
HP	183	Introduction to Curling	1.00	11
HP	190	Sport Activities	1.00	11
HP	191	Yoga	1.00	11
HP	192	Indoor Cycling	1.00	11
HP	245	Intermediate Swimming	1.00	11
HP	252	Officiating Theory	2.00	11
HP	257	Water Safety Instructor (WSI)	2.00	11

HP	291	Concepts of Fitness	2.00	11
KSP	220W	Human Relations in a Multicultural Society	3.00	11
MSL	210	Army Physical Fitness	1.00	11
MUSP	101	Concert Choir	0-1	11
MUSP	102	University Chorale	0-1	11
MUSP	103	Chamber Singers	0-1	11
MUSP	108	Contemporary Vocal Ensemble	0-1	11
MUSP	111	Music Productions for the Stage and Screen	0,1	11
MUSP	114	Vocal Ensemble	1.00	11
MUSP	121	Wind Ensemble	0-1	11
MUSP	122	Symphonic Band	0-1	11
MUSP	123	University Orchestra	0-1	11
MUSP	125	Jazz Ensemble	0-1	11
MUSP	126	Contemporary Instrumental Ensemble	0-1	11
MUSP	131	Maverick Machine Athletic Band	0-1	11
MUSP	133	Percussion Ensemble	0-1	11
MUSP	135	Theatre Orchestra	0-1	11
MUSP	139	Instrumental Ensemble	0-1	11
MUSP	177	Group Instruction in Guitar	3.00	11
MUSP	201	Concert Choir	0-1	11
MUSP	202	University Chorale	0-1	11
MUSP	203	Chamber Singers	0-1	11
MUSP	208	Contemporary Vocal Ensemble	0-1	11
MUSP	211	Music Productions for the Stage and Screen	0-1	11
MUSP	214	Vocal Ensemble	0-1	11
MUSP	221	Wind Ensemble	0-1	11
MUSP	222	Symphonic Band	0-1	11
MUSP	223	University Orchestra	0-1	11
MUSP	225	Jazz Mavericks	0-1	11
MUSP	226	Contemporary Instrumental Ensemble	0-1	11
MUSP	233	Percussion Ensemble	0-1	11
MUSP	235	Theatre Orchestra	0-1	11
MUSP	239	Instrumental Ensemble	0-1	11
NURS	286	Relationship-Based Care	3.00	11
POL	101	Introduction to Public Life	4.00	11
RPLS	150	Esports Skills Development	1.00	11
RPLS	293	Leisure, Recreation, Play, and Well-Being	3.00	11
SPAN	250	Spanish Through Latin Dancing	4.00	11
THEA	101	Acting for Everyone	3.00	11
THEA	102	Theatre Activity: Acting	1-2	11
THEA	103	Theatre Activity: Management	1-2	11
THEA	105	Theatre Activity: Stagecraft	1-2	11
THEA	107	Theatre Activity: Costume	1-2	11
THEA	108	Theatre Activity: Lighting	1-2	11
THEA	109	Theatre Activity: Sound	1-2	11
THEA	121	Movement for Theatre	3.00	11
URBS	230	Community Leadership	3.00	11
URBS	230W	Community Leadership	3.00	11

General Education

Goal Area 12: First Year Experience

Narrative

Requires 0-1 credits.

Goal: To promote further development of student success skills, such as reading, writing and speaking; help students gain intellectual confidence; build in the expectation of academic success; and to provide assistance in making the transition to the University.

Students will be able to:

1. experience higher personal expectations of his/her ability to meaning fully participate in academic life;
2. define and give examples of critical thinking;
3. interact with other students regarding academic matters;
4. affirm that careful thinking is an important aspect of the educational process;
5. make a comfortable transition to college life.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
CIVE	100	Explorations in Engineering	1.00	12
EE	100	Explorations in Engineering	1.00	12
FYEX	100	First Year Seminar	1.00	12
ME	100	Explorations in Engineering	1.00	12

General Education

Goal Area 13: Information Technology

Narrative

Requires 0-2 credits

Goals: To familiarize students with the tools, concepts and societal impact of information technology and to develop the skills necessary to use this technology critically and effectively.

Students will be able to:

1. use electronic information technology ethically and responsibly;
2. access and retrieve information through electronic media, evaluating the accuracy and authenticity of that information;
3. create, manage, organize and communicate information through electronic media;
4. demonstrate a working knowledge of information technology terms and concepts;
5. understand how computers function and the limits of computation and information technology;
6. recognize changing technologies and make informed choices in their use.

Subject Abbreviation	Course Number	Title	Credits	General Education Code
EET	115	Understanding Computers	3.00	13
EET	116	Communications-Past, Present & Future	3.00	13
ENG	271W	Technical Communication	4.00	13
ENG	272W	Business Communication	4.00	13

General Education

Writing Intensive

Subject Abbreviation	Course Number	Title	Credits	General Education Code
AE	488W	Senior Design Project I	3.00	W
AE	489W	Senior Design Project II	3.00	W
AET	488W	Senior Design Project I	3.00	W
AET	489W	Senior Design Project II	3.00	W
AIS	210W	Oral Traditions	3.00	W
AIS	220W	Introduction to Tribal Sovereignty	3.00	W
AIS	230W	American Indians of Minnesota	3.00	W
AIS	240W	American Indian Women	3.00	W
AIS	300W	American Indian Leaders	3.00	W

ANTH	250W	Portraits of Culture	4.00	W
ANTH	421W	Health, Culture, and Disease	4	W
ANTH	425W	Anthropology of Death	4	W
ANTH	436W	Anthropology of Aging	4	W
ANTH	438W	Anthropological Theory	4.00	W
ANTH	443W	People and Cultures of East Asia	4	W
AOS	380W	Applied Leadership Workshop 2	3.00	W
ART	265W	Art As Politics	3.00	W
ART	477W	Roots of Modern Islamic Art	3.00	W
AST	115W	Life in the Universe	2.00	W
BIOL	443W	Plant Ecology	4.00	W
CAHN	101W	The Health Care Professions	3.00	W
CDIS	350W	Interprofessional Practice and Research	3.00	W
CDIS	409W	Literacy Foundations and Disorders for Speech-Language Pathologists	3.00	W
CDIS	457W	Transdisciplinary Research in Health-Related Fields	3.00	W
CHEM	481W	Inquiry and Writing in Biochemistry and Chemistry	3.00	W
CIS	202W	Computers in Society	4.00	W
CIVE	370W	Transportation Engineering	4.00	W
CIVE	401W	Civil Engineering Design I	2.00	W
CIVE	402W	Civil Engineering Design II	3.00	W
CIVE	478W	Transportation Asset Management	3.00	W
CJ	332W	Peace Officer Communication Techniques	3.00	W
CJ	421W	Community Corrections	3.00	W
CJ	430W	Peace Officer Technical Writing	3.00	W
COMM	105W	Interpersonal Communication	4.00	W
COMM	221W	Media Writing Fundamentals	4.00	W
COMM	325W	Reporting and Editing	4.00	W
COMM	330W	Multimedia Storytelling	4.00	W
COMM	434W	Public Relations Writing	4.00	W
COMM	436W	Specialized Writing	4.00	W
CS	201W	Artificial Intelligence & Science Fiction	4.00	W
CS	391W	Computer Science Project 1	4.00	W
CS	392W	Computer Science Project 2	4.00	W
CS	490W	Cognitive Science Senior Capstone	4.00	W
CS	491W	Computer Science Capstone 1	4.00	W
CS	492W	Computer Science Capstone 2	4.00	W
CS	498W	Senior Thesis	4.00	W
CW	242W	Introduction To Creative Writing	4.00	W
CW	447W	Advanced Creative Writing	4.00	W
DANC	120W	Introduction to Dance	3.00	W
DANC	484W	Dance History	3.00	W
DHYG	425W	Community Dental Health	3.00	W
DHYG	444W	Principles of Oral Health Promotion	3.00	W
DHYG	453W	Research Methods in Dental Hygiene	3.00	W
ECON	103W	The Economics of Women's Issues and Public Policy in the United States	3.00	W
ECON	314W	Current Economic Issues	3.00	W
ECON	320W	Gender Issues and Economic Globalization	3.00	W
ECON	462W	Econometrics	4.00	W
EE	467W	Principles of Engineering Design III	1-2	W
EE	477W	Principles of Engineering Design IV	1-2	W
ELE	222W	Human Relations in a Multicultural Society	4.00	W

ELE	430W	Integrating Arts & Physical Health Across the Elementary Curriculum	4.00	W
ENG	112W	Why Literature Matters	4.00	W
ENG	201W	Writing Technologies	4.00	W
ENG	211W	Literature and Human Diversity	4.00	W
ENG	212W	World Literature	4.00	W
ENG	213W	Literature and Ethics	4.00	W
ENG	271W	Technical Communication	4.00	W
ENG	272W	Business Communication	4.00	W
ENG	273W	Agricultural Communication	4.00	W
ENG	275W	Introduction to Literary Studies	4.00	W
ENG	301W	Advanced Writing	4.00	W
ENG	402W	Gender in Literature	4.00	W
ENG	403W	Selected Authors	4.00	W
ENG	412W	Arab American Literature	4.00	W
ENG	433W	Selected Studies in World Literature	4.00	W
ENG	436W	Native American Literature	4.00	W
ENG	437W	Latina/o Literature	2-4	W
ENG	438W	African American Literature	4.00	W
ENG	474W	Research and Writing Technical Reports	4.00	W
ENG	477W	Technical Documentation, Policies, and Procedures	4.00	W
ENGR	311W	Professionalism I	3.00	W
ENGR	312W	Professionalism II	3.00	W
ENGR	411W	Professionalism III	3.00	W
ENGR	412W	Professionalism IV	3.00	W
ETHN	201W	Perspectives on African Americans	3	W
ETHN	203W	Perspectives on Asian Americans	3.00	W
ETHN	204W	Perspectives on Latinos/Hispanics	3.00	W
ETHN	220W	Civil Rights in the U.S.	3.00	W
ETHN	402W	Ethnic Research Methods/Skills	3.00	W
FCS	414W	Family Policy and Ethics	3.00	W
FCS	480W	Applied Food Science	3.00	W
FILM	210W	Film Genres	4.00	W
FILM	216W	Writing About Film	4.00	W
FILM	334W	International Cinema	4.00	W
FREN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	W
FREN	302W	Composition	2-4	W
GEOG	210W	Landscapes and Places	3.00	W
GEOG	416W	Fluvial Geomorphology and Hydrology	4.00	W
GEOL	320W	Sedimentology and Stratigraphy	4.00	W
GER	150W	The German-Speaking Countries: An Interdisciplinary Introduction	4.00	W
GER	280W	Parallel Worlds: Exploring Cultures & Symbols	4	W
GERO	200W	Family Dynamics of Aging	3.00	W
GWS	110W	Introduction to Gender	4.00	W
GWS	120W	Violence and Gender	4.00	W
GWS	220W	Sex and Gender Worldwide	4.00	W
GWS	225W	Queer America	4.00	W
HIST	170W	Ancient World Civilization to 1500	4.00	W
HIST	171W	World Civilization, 1500-Present	4.00	W
HIST	180W	European History to 1648	4.00	W
HIST	181W	European History: 1648 to the Present	4.00	W
HIST	190W	United States to 1877	4.00	W

HIST	191W	United States Since 1877	4.00	W
HIST	246W	Sports and Games in History	4.00	W
HIST	260W	Introduction to Traditional East Asian Civilization	4.00	W
HIST	481W	Civil Rights in the Twentieth Century	4.00	W
HIST	495W	Senior Seminar	4.00	W
HLTH	361W	Health Communication and Advocacy	4.00	W
HLTH	380W	Health Education Planning, Implementing, and Evaluating 1	3.00	W
HLTH	408W	Theories and Methods for Addictions Professionals	3.00	W
HLTH	410W	Current Health Issues	3.00	W
HLTH	420W	Health Teaching Methods	3.00	W
HLTH	457W	Transdisciplinary Research in Health-Related Fields	3.00	W
HLTH	482W	Administration and Grant Writing in Health Education	4.00	W
HP	315W	Research Methods and Statistics in Exercise Science	3	W
HUM	101W	Introduction to Humanities and the Search for Meaning	4.00	W
HUM	250W	Perspectives in Humanities	4.00	W
HUM	280W	Humanities Traditions	4.00	W
HUM	281W	Human Diversity and Humanities Traditions	4.00	W
HUM	282W	Global Perspectives and Humanities Traditions	4.00	W
HUM	450W	Humanities Seminar	4.00	W
KSP	220W	Human Relations in a Multicultural Society	3.00	W
MATH	492W	Mathematics Capstone Experience	3.00	W
ME	436W	Mechanical Engineering Experimentation II	2.00	W
ME	438W	Design Project II	3.00	W
ME	466W	Mechanical Engineering Experimentation III	2.00	W
MET	488W	Senior Design Project I	2.00	W
MET	489W	Senior Design Project II	2.00	W
MFE	488W	Senior Design I	2.00	W
MFE	489W	Senior Design II	2.00	W
MUSC	301W	Music History 1	3.00	W
MUSC	302W	Music History 2	3.00	W
MUSC	309W	Music Travel Tour	3.00	W
MUSC	320W	Musicpreneurship	3.00	W
MUSE	200W	Introduction to Museum Studies	4.00	W
NURS	320W	Critical Inquiry and Evidence-based Practice for RNs	4.00	W
NURS	350W	Critical Inquiry in Nursing	3.00	W
NURS	482W	Population-Based Public Health Practice for RNs	6.00	W
PHIL	100W	Introduction to Philosophy	3.00	W
PHIL	101W	Philosophical Problem: The Mind-Body Problem	3.00	W
PHIL	112W	Scientific Reasoning	3.00	W
PHIL	115W	Philosophy of Race, Class and Gender	3.00	W
PHIL	120W	Introduction to Ethics	3.00	W
PHIL	122W	Introduction to Asian Philosophy	3.00	W
PHIL	205W	Culture, Identity, and Diversity	3.00	W
PHIL	222W	Medical Ethics	3.00	W
PHIL	224W	Business Ethics	3.00	W
PHIL	226W	Environmental Ethics	3.00	W
PHIL	240W	Law, Justice & Society	3.00	W
PHIL	321W	Social & Political Philosophy	3.00	W
PHIL	322W	Ethical Theory	3.00	W
PHIL	323W	Philosophy of Economics	3.00	W
PHIL	334W	History of Philosophy: Classical Philosophy	3.00	W

PHIL	336W	History of Philosophy: Renaissance and Modern Philosophy	3.00	W
PHIL	358W	Topics in Asian Philosophy	3.00	W
PHYS	475W	Advanced Laboratory	3.00	W
POL	103W	Thinking About Politics	4.00	W
PSYC	103W	Psychology Today	3.00	W
PSYC	211W	Research Methods and Design	4.00	W
PSYC	460W	Psychology of Women	3.00	W
REHB	110W	Sensitivity to Disability	3.00	W
RPLS	341W	Research Methods in RPLS	3.00	W
RPLS	377W	Public Relations	3.00	W
RPLS	393W	Advancing Diversity, Equity, and Inclusion in RPLS	3.00	W
RPLS	447W	Therapeutic Recreation Process	3.00	W
RPLS	457W	Transdisciplinary Research in Health-Related Fields	3.00	W
RPLS	471W	Research Design in Recreation, Parks and Leisure Services	3.00	W
SCAN	150W	The Nordic Countries: Interdisciplinary Introduction	4.00	W
SCAN	251W	Scandinavian Cultures: The Sami	4.00	W
SCAN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	W
SE	311W	SE Professionalism 1	2.00	W
SE	312W	SE Professionalism 1	2.00	W
SE	411W	SE Professionalism 3	2.00	W
SE	412W	SE Professionalism 4	2.00	W
SE	498W	Senior Thesis	4.00	W
SOC	214W	Animals and Society	4.00	W
SOC	285W	Selected Topics in Sociology	4.00	W
SOC	301W	Social Research I	4.00	W
SOWK	215W	Introduction to Social Welfare Services	4	W
SOWK	310W	Human Behavior in the Social Environment	4	W
SPAN	210W	Composition and Conversation Workshop	4.00	W
SPAN	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	W
SPAN	311W	Composition Workshop for Heritage/Bilingual Speakers	4.00	W
SPAN	403W	Topics in Spanish American Literature	1-4	W
SPED	448W	Behavior Management and Learning Environments for Diverse Learners	4.00	W
THEA	285W	Theatre of Diversity	3.00	W
THEA	381W	Play Analysis	3.00	W
THEA	417W	Acting Techniques	3.00	W
THEA	485W	Theatre Dramaturgy	3.00	W
THEA	487W	Playwriting	3.00	W
URBS	230W	Community Leadership	3.00	W
WLC	280W	Parallel Worlds: Exploring Cultures & Symbols	4.00	W