

Special Topics

21F.910 Special Topics in Foreign Languages and Literatures

Prereq.: —
U (Fall)
Units arranged
Can be repeated for credit

21F.911 Special Topics in Foreign Languages and Literatures

Prereq.: —
U (IAP, Spring)
Units arranged
Can be repeated for credit

Advanced work in foreign languages and literatures for students wishing to pursue topics or projects not provided for by regular subject offerings. Before registering, student must plan course of study with appropriate instructor in the Section and secure the approval of the Section Head. Normal maximum is 6 units; to count toward HASS Requirement, 9 units are required. Exceptional 9-unit projects occasionally approved.

Consult Foreign Languages and Literatures Headquarters.

For individual research in Foreign Languages and Literatures, register for 21F.UR or 21F.URG. For Foreign Languages and Literatures pre-thesis tutorial, register for 21F.ThT. For undergraduate thesis, register for 21F.ThU. Descriptions of these subjects can be found in the beginning of this section under 21.UR, 21.URG, 21.ThT, and 21.ThU on page 487.

History

Consult History Headquarters, E51-285, for the most up-to-date information about requirements and subject offerings.

American History

Survey Subjects

21H.101 American History to 1865

Prereq.: —
U (Fall)
3-0-9 HASS

A basic history of American social, economic, and political development from the colonial period through the Civil War. Examines the differences between Indians and European settlers; the colonial heritages of Spanish and British America; the American Revolution and its impact; the establishment and growth of the new nation; the Civil War, its background, character, and impact. Readings are from modern scholarship as well as writings of the period, including those of Winthrop, Paine, Madison, H. B. Stowe, and Lincoln.

J. Saillant

21H.102 The Emergence of Modern America, 1865 to the Present

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 5

Examines four central issues in the development of modern America: the ways in which different groups sought to alter society; the rise of a strong central government and its effect on the nation; the impact of the nation's role as a superpower on domestic life; and changes in the lives of Americans from 1865 to the present. Using primary documents as well as secondary interpretations, subject explores issues of politics, economics, race, and gender from Reconstruction to the 1990s.

H. Richardson

21H.103 Family, Work, and Leisure in America, 1600 to the Present

Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 5

An interdisciplinary exploration of changes in family life, work, and leisure among a diversity of Americans in four historical contexts — the pre-industrial North, the antebellum South, the early twentieth century, and our own time. Topics include gender roles, transformations in the organization and meaning of work, the relationship between private and public life, and changing ideals and experiences of leisure.

C. Appy

21H.104J Riots, Strikes, and Conspiracies in American History

(Same subject as 11.015J)

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 5

Readings and discussions focusing on a series of short-term events that shed light on American culture and social organization. The events studied in 1995 were the anti-abolitionist "riot" at Alton, Illinois, in 1837, the lockout and strike at Homestead, Pennsylvania, in 1892, the uprising at Columbia University in 1968, and the takeover of Attica penitentiary in 1971. Emphasis on finding ways to make sense of these complicated, highly traumatic events, and on using them to understand larger processes of change in American history.

P. Maier, R. M. Fogelson

21H.111 Colonial America

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-9 HASS

North American history to 1763 with particular attention to the development of society and politics in the British colonies. Topics include the British, French, and Spanish empires; insurrections, witchcraft, and slavery; economic, social, and religious change; war, politics, and political ideology on the eve of the American Revolution. Readings are drawn from the most recent historical scholarship as well as documents of the time.

P. Maier

21H.112 The American Revolution

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-9 HASS

English and American backgrounds of the Revolution; issues and arguments in the Anglo-American conflict; colonial resistance and the beginnings of republicanism; the Revolutionary War; constitution writing for the states and nation; effects of the American Revolution. Concerned primarily with the revolutionary origins of American government. Readings emphasize documents from the period — pamphlets, correspondence, the minutes or resolutions of resistance organizations, constitutional documents and debates.

P. Maier

21H.113 The New Republic, 1787–1850

(21.402)

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

Examines the effort to create a new nation and a true republic in an explosively changing era. Struggles and politics of the 1790s; triumph of Jeffersonian democracy; the surge west and the uprooting of the Indian; religious revivalism and the great utopian craze; the rise of abolitionism and the struggle over slavery; major changes in technology and the economy; the growth of classes in a democratic society; rise of Jacksonian democracy and disputes about its meaning. Flowering of American popular and literary culture. Roots of the Civil War.

Staff

21H.116J The Civil War and Reconstruction

(Same subject as STS.029J)

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-6 HASS

Anti-slavery and the intensification of sectionalism in the 1850s; the secession crisis; political and military developments in the Civil War years; why the North won; the political, economic, and social legacies of the conflict.

M. R. Smith

21H.126 America in the Twenties and Thirties

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

American politics, society, and culture during the 1920s and the Great Depression. Topics include the impact of World War I on American society; changing gender roles; race and ethnicity; economy and culture of the 20s; impact of the Depression; and significance of the New Deal. Readings in both historical and literary materials, accompanied by contemporary films. C. Appy

21H.131 The United States in the Nuclear Age: Politics, Culture, and Society Since 1941

(Revised Units)

Prereq.: —

U (Fall)

3-0-9 HASS

American experience at home and abroad from Pearl Harbor to the end of the Cold War. Topics include America's role as global superpower, foreign and domestic anticommunism, social movements of left and right, economic and demographic change, popular culture, relations of class, race, and gender.

C. Appy

American experience at home and abroad from Pearl Harbor to the end of the Cold War. Topics include America's role as global superpower, foreign and domestic anticommunism, social movements of left and right, economic and demographic change, popular culture, relations of class, race, and gender.

A. McCants

21H.132 The Vietnam War

Prereq.: —

U (Spring)

3-0-9 HASS

An interdisciplinary history of America's longest and most controversial war. Debates about the causes of the war and its moral legitimacy, the experiences of ordinary soldiers and civilians, wartime politics, the antiwar movement, and legacies of the war. Includes films, novels, oral histories, government documents.

C. Appy

21H.151J American Women's History

(Same subject as SP.420J)

Prereq.: —

U (Fall)

3-0-9 HASS

An exploration of the history of American women from the colonial era to the present, focusing on changes in women's domestic lives, women in the public sphere, and societal images of women. Using primary and secondary sources, students examine the ways in which issues of family, class, economics, and ethnicity have shaped the lives of American women.

H. C. Richardson

21H.153J Race and Gender in Asian America

(Same subject as SP.421J)

Prereq.: —

U (Fall)

3-0-9 HASS

An interdisciplinary examination of the Asian-American experience with particular emphasis on gender and race from mid-nineteenth century to present. Topics include the Gold Rush and "frontier" politics, Asia in the American imagination, international relations and changing attitudes towards immigrant groups, popular images in magazines and films, and cultural productions by Asian Americans. Uses extensive primary sources and audio-visual media.

J. E. Teng

21H.161 Introduction to Black Studies

Prereq.: —

U (Spring)

3-0-9 HASS-D, Category 4

An interdisciplinary introduction to central questions in the field of African-American studies, set in a historical context, incorporating elements from the humanities and social sciences. Extensive use made of primary source materials and audio and visual media.

J. Saillant

American History**Topical Subjects****21H.209 The Frontier and the American West**

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-6 HASS

An examination of the images and realities of the American West from the colonial period to the twentieth century, with an emphasis on the 1800s. Subject is concerned overall with what the West has meant to Americans over the centuries, and explores issues of politics, society, culture, and ecology. Students use primary sources to cover topics including Native American interaction with European settlers, the legend of Daniel Boone, the Gold Rush, and Asian immigration to California.

H. Richardson

21H.210 The Cold War and American Film, 1945–1964

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

6-0-6 HASS

Examines a diverse selection of American films made during the early years of the Cold War. Major questions include: How do these films construct their own interpretations of the Cold War? How do those interpretations compare to ones offered by others in American society, including US leaders? What can historical analysis teach us about these films? What can cinematic dreams and nightmares suggest about the meanings of Cold War culture? Films include *The Day the Earth Stood Still*, *Steel Helmet*, *Invasion of the Body Snatchers*, and *The Manchurian Candidate*.

C. Appy

21H.211 America Bound: Immigrant Experiences from 1600 to the Present

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Examines a variety of immigrant experiences, both voluntary and involuntary. Topics include the slave trade, the causes of migration, definitions of "American," assimilation and acculturation, nativism, and current debates about multiculturalism. Texts include novels and memoirs.

C. Appy

21H.212 History and the Making of Asian America

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Examines the historical trajectory of the Asian diaspora from the early nineteenth century to the post-Vietnam era, covering the tremendous changes in the ideology of national identity, citizenship, race, and foreign relationships in the various Asian nations and in the US. Focuses on the intersecting histories of the Chinese, Japanese, Koreans, Filipinos, Vietnamese, and South Asians in the US. Readings contextualize the various processes over this period in three frameworks: emergent national/ethnic politics, American international identity, and the accelerated pace of international contact. Topics covered: imperialism and colonialism in Asia, immigration and international laws, race and citizenship, political economy and "alien" labor, war and alienation of Asians in America, war and naturalization of Asians in America, and the gendering of Asian America.

*Staff***21H.231J American Urban History I**

(Same subject as 11.013J)

Prereq.: —

U (Fall)

3-0-6 HASS

See description under subject 11.013J.

*R. M. Fogelson***21H.232J American Urban History II**

(Same subject as 11.014J)

Prereq.: —

U (Spring)

3-0-6 HASS

See description under subject 11.014J.

*R. M. Fogelson***21H.234J Downtown**

(New)

(Subject meets with 11.026J, 11.339)

Prereq.: —

U (Spring)

2-0-7 HASS

Seminar on downtown in US cities from the late nineteenth century to the late twentieth. Emphasis on downtown as an idea, place, and cluster of interests, on the changing character of downtown, and on recent efforts to rebuild it. Subjects considered include subways, skyscrapers, highways, urban renewal, and retail centers. Focus on readings, discussions, and individual research projects. Meets with graduate subject 11.339, but assignments differ.

*R. M. Fogelson, B. J. Frieden***European History****Survey Subjects****21H.301 The Ancient World: Greece**

Prereq.: —

U (Fall)

3-0-9 HASS-D, Category 5

History of Ancient Greece from the Homeric period to the death of Alexander the Great. Development of the city-state, Athenian democracy, and the nature of Greek politics; the conflict between Greece and Persia, and between Sparta and the Athenian naval empire; consequences of the latter conflict — the Peloponnesian War — for subsequent Greek history; finally, the Macedonian conquest of Greece and Persia.

*J. E. Lendon***21H.302 The Ancient World: Rome**

Prereq.: —

U (Spring)

3-0-9 HASS-D, Category 5

History of Rome from its founding to its fall. Roman Republican society and government: how it worked; how it conquered; how it changed; causes leading to its dissolution. The age of the great captains — Sulla, Pompey, and Caesar. Creation of the Roman monarchy: the triumph of Augustus. Political and social history of the Roman empire; the grandeur that was Rome; crisis of the third century A.D., revival in the fourth century; reasons for the collapse of the Roman Empire in the West, and its survival in the East.

*J. E. Lendon***21H.306 The Emergence of Europe:****500-1300**

Prereq.: —

U (Fall)

3-0-9 HASS

Survey of the social, cultural, and political development of western Europe between 500 and 1300. Topics include: the Germanic conquest of the ancient Mediterranean world; the Carolingian Renaissance; feudalism and the breakdown of political order; the crusades; the quality of religious life; the experience of women; and the emergence of a revitalized economy and culture in the twelfth and thirteenth centuries.

A. McCants

C. C. Wickham

21H.315 History of the Western World I:**1492-1815**

Prereq.: —

U (Spring)

3-0-9 HASS

The evolution of the Western world between the end of the Middle Ages and the French Revolution. Topics: heritage of the Middle Ages; emergence of the new dynastic monarchies; the great explorations; the Renaissance in Italy and Northern Europe; the Protestant and Catholic Reformation; the Scientific Revolution; the Enlightenment; development of the bureaucratic state; the American and French revolutions.

*A. McCants***21H.320 Europe in the 20th Century**

Prereq.: —

U (Fall)

3-0-9 HASS

Examines changes in European political, social, and cultural life from the origins of World War I to the developments of the 1980s and 1990s. Topics covered include World War I, the post-war revolutions, the counter-revolutions of Fascism and Nazism, the Great Depression, the totalitarian states, World War II, reconstruction, Europe in the Cold War, relations with former colonies, the collapse of communism, and Europe in the global perspective of the 1990s.

*W. B. Watson***21H.326 The Making of Russia in the Worlds of Byzantium, Mongolia, and Europe (ca. 850-1800)**

Prereq.: —

U (Spring)

3-0-9 HASS

Examines the Kievan state, tsardom of Muscovy, and Petrine empire within the context of Byzantium, the Eurasian steppe, and Western culturally and politically defined spaces. Considers the more lasting, defining influences of such experiences, together with geography, ethnology, and also great leaders of Russian institutions and culture.

*E. Wood***21H.336 Modern Spain, 1469-1939**

Prereq.: —

U (Spring)

3-0-6 HASS

Development of modern Spain from union of Castile and Aragon to triumph of General Franco in Spanish Civil War. Topics: growth and collapse of empire, struggle to establish a modern state, liberal experiment and oligarchic reaction, *pronunciamiento*-style rebellions, rule of new elites, collapse of monarchy and the Republican experiment, polarization and civil war.

W. B. Watson

European History**Topical Subjects****21H.401 Greece in the Fifth Century**

Prereq.: —
U (Spring)
3-0-6 HASS

The political, diplomatic, and social history of Greece from the close of the Persian Wars to the end of the fifth century BC, concentrating on the origins and course of the cataclysmic Peloponnesian War between Athens and Sparta. Domestic politics on both sides and its relations with foreign policy: Athenian democracy and naval empire; Spartan society and the helot problem; war strategy and war guilt.

21H301 recommended.

J. E. Lendon

21H.403 The Roman Empire

Prereq.: —
U (Fall)
3-0-9 HASS

The Roman principate from its founding (27 BC) to the beginning of the third-century military anarchy (c. AD 235): politics under the empire; the role of the army; Roman government and its workings; revolts; as well as the economic, social, cultural, and emotional bases of Roman rule. 21H 302 recommended.

J. E. Lendon

21H.411 History of Western Thought, 500–1300

Prereq.: —
U (Spring)
2-0-7 HASS

Examines the development of the western intellectual tradition from the fall of the Roman Empire through the High Middle Ages. Basic premise is that the triumph of Christianity in Europe was not the inevitable outcome it appears from hindsight. Attention is therefore focused not only on the development of Christian thought and practice, but on its challengers as well. Particular emphasis devoted to Nordic paganism, the rise of Islam, Byzantine orthodoxy, indigenous heretical movements, and the ambiguous position of Jews in European society.

A. McCants

21H.416 Living and Dying in Pre-industrial Europe

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 5

Survey of the conditions of material life and changing social relations in western Europe from 500 to 1750. Subject covers the emergence and decline of feudal institutions, the transformation of peasant-based agriculture, living standards and the course of epidemic diseases, and the origins of capitalist organization. Special emphasis placed on the study of those factors, both institutional and technological, which contributed to the economic growth and overseas expansion of western Europe.

A. McCants

21H.421 Introduction to Environmental History

Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 5

A historical overview of the interactions between people and their environment. Focusing primarily on the experience of Europeans in the period after Columbus, the subject explores the influence of nature (climate, topography, plants, animals, and microorganisms) on human history and the reciprocal influence of people on nature. Topics considered include the European encounter with the Americas, the impact of technology, and the historical context of the current environmental crisis.

H. Ritvo

21H.429 Art and Society in the Dutch Golden Age

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
3-0-6 HASS

Examines the emergence and flourishing of a national Dutch culture in the seventeenth century. Employs both visual images and text in an effort to uncover the nature of economic values, religious ethics, and family life in the Dutch Republic. Looks at the image of Dutch society as depicted by such contemporary masters as Rembrandt, Jan Vermeer, and Jan Steen. Also looks to England for a comparative perspective on the impact of commerce and Protestantism on society.

A. McCants

21H.433 The Age of Reason: Europe in the 18th and 19th Centuries

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 5

A study of the evolution of European society from the end of the seventeenth century to the outbreak of World War I. Its politics, the nature of its social system, the workings of its economy, and its intellectual accomplishments. Particular attention given to the analyses made by critics and thinkers contemporary to the matters treated in the subject.

Fall Term: *B. Mazlish*

Spring Term: *S. Coe*

21H.437 Social History of Europe, 1789 to the Present

Prereq.: —
U (Fall)
3-0-9 HASS

Examines Europe as four macro-regions:

1) Britain, 2) the continental northwest, 3) east-central and Mediterranean Europe, and 4) Russia. Explores how differences in pre-industrial societies and politics shaped the tempo and character of industrialization. Examines social origins of communism, fascism, and democracy. Other themes include population and migration, women and society, the family, and the organization of work.

S. Coe

21H.451 Spanish Civil War, 1936–39

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-6 HASS

Examines how traditional conflicts in Spanish society erupted into civil war, almost immediately provoking a worldwide response. Examines the consequences of the Civil War for Spain and the rest of Europe. Special attention to literary and artistic responses to the war.

W. B. Watson

21H.452 Anarchism

Prereq.: —
U (Spring)
3-0-6 HASS

Readings from classics of European and American Anarchism. The study of anarchistic and anarcho-syndicalist movements in Europe, the utopian anarchist communities, and the anarchist labor and feminist struggles in the US. Examines all branches and versions of anarchism, from radical individualists to collectivist communitarians, and various anarchistic critiques of modern industrial society and of the bureaucratic state.

W. B. Watson

21H.466 Imperial and Revolutionary Russia: Culture and Politics

Prereq.: —
U (Fall)
3-0-9 HASS

Analyzes Russia's social, cultural, political heritage, Eurasian imperialism, and autocracy. Compares reforming and revolutionary impulses in the context of serfdom, the rise of the intelligentsia, and debates over capitalism. Focuses on both historical and literary texts, and especially the intersections between the two.

S. Coe

21H.467 Soviet Politics and Society, 1917–1991

(Revised Content)

(Same subject as 17.601J)
Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 4

See description under subject 17.601J.

E. Wood, D. Woodruff

East Asian History

21H.501 East Asian History: China

Prereq.: —
U (Spring)
3-0-9 HASS

History of Chinese civilization from ancient times to the 1980s. Topics include the origins of Chinese civilization, the competing philosophical schools of early China, the early empire, the effects of Buddhism, the T'ang-Sung transition, late imperial government, popular culture, the impact of the West, the 1911 and 1949 revolutions, and China under Communism.

C. Liu

21H.502 Revolution in China, 1850–1980

Prereq.: —
U (Spring)
3-0-6 HASS

Examines social transformation and revolutionary upheaval in nineteenth- and twentieth-century China. Includes Taiping Rebellion, 1911 revolution, rise of the Nationalist Party, growth of the Chinese Communist party under Mao, and causes of its victory in 1949. Discusses developments in post-1949 China and concludes with recent economic reforms and the democracy movement.

C. Liu

21H.505 Social and Economic Transformation in China, A.D. 900–1900

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-6 HASS

In the year 1000, China was the world's most populous, most urbanized, and most technologically advanced civilization. By 1900, it had become one of the world's poorest nations. Why? Students examine long-term social and economic change during this period, including geography, demography, commerce and state economic policy, technology, agriculture, popular culture, and collective action, concluding with a discussion of the legacy for economic modernization in China today.

Staff

21H.521 Ancient Japan and the Courtly Society

Prereq.: —
U (Spring)
3-0-9 HASS

Japanese history and culture from earliest times to the late twelfth century. Covers prehistoric cultures, creation myths, native and borrowed beliefs (Shinto, Buddhism, and Confucianism), the origins of the imperial dynasty, and the emergence of a highly aesthetic court society sometimes called "the world of the shining prince." Readings include many writings in translation (poems, prayers, popular tales, classics by women, etc.). Early art is introduced.

J. Dower

21H.522 Japan in the Age of the Samurai: History and Film

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-9 HASS

Medieval Japanese society and culture from the twelfth to the nineteenth centuries, when political power rested largely in the hands of feudal warriors. Topics include religion (especially Zen Buddhism), changing concepts of "the way of the warrior," the century of Japanese contact with Christian missionaries and European traders beginning in the 1540s, and the dynamic period of seclusion and urbanization which followed and lasted until 1853. Presentations include feature films.

J. Dower

21H.523 Emergence of the Modern Japanese State, 1800–1945

Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 5

Interdisciplinary and global perspectives on Japan's emergence as a powerful modern state. Begins in the period of national seclusion which ended in 1853, then addresses the creation of the Meiji state (1868–1912), Japan's emergence as an imperialist power, the accomplishments and costs of rapid Westernization and "modernization," and the road to war and defeat in World War II. Translated materials, graphics, and films help provide both elite and popular Japanese perspectives.

J. Dower

21H.524 Topics in Twentieth-Century Japanese History: Remaking Japan, 1945–1952

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
2-0-10 HASS
Can be repeated for credit

Examines select topics in modern and contemporary Japanese history. In 1996–97, examines Japan in the wake of World War II, when the country was occupied by the United States and devoted itself to the task of reconstruction as a peaceful and democratic country. Following general introductory sessions, students devote the major portion of their time to an independent research project culminating in a 25-page paper.

J. Dower

21H.536 Family, State, and Economy in East Asian History

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 5

Focuses on three themes which are vital to the study of East Asian societies. 1) How have Confucian ideas on the family been put into practice in East Asia? 2) How has the intellectual elite voiced its criticism of the state in imperial and modern times? 3) What factors in eighteenth- and nineteenth-century China and Japan have promoted or obstructed economic and technological development? Most of the subject focuses on China, but it includes comparative discussion of Japan.

C. Liu

21H.541J Industrial Competition in the US and Asia

(Same subject as 3.08J, TPP.03J)

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
2-0-7 HASS

See description under subject 3.08J.
P. C. Perdue, J. P. Clark

21H.560 Smashing the Iron Rice Bowl: Chinese East Asia

Prereq.: —
U (Fall)
2-0-7 HASS

Introduction to salient issues in the study of twentieth-century China. One central question informs the discussion: should the current economic boom of Chinese East Asia cause us to reexamine our conventional understanding of the growth of capitalism in Western liberal societies? Intended especially for students who have lived, worked, or studied in Chinese East Asia, or who plan to go there in the future, but open to all undergraduates. Topics include: Chinese nationalism, the rise and fall of Communism, cultural legacies of pre-modern China, film and literature, economic reforms, and political organization.

C. Liu

Middle Eastern History

21H.601 Islam, the Middle East, and the West

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 5

Surveys the major political, socio-economic, and cultural changes in the Middle East from the rise of Islam to present times (A.D. 600–1990), with special emphasis on Islam's encounter with the West. Examines the rise and fall of Islamic empires, the place of Arabs, Persian and Turkic peoples, and minorities in Islamic society, scientific and technological achievements and their transmission to the West, and the impact of European expansion after 1800. Considers contemporary crises and upheavals facing the Middle East in light of the historical past, including the Arab-Israeli conflict and Islamic populism.

Staff

21H.615 The Middle East in the Twentieth Century

Prereq.: —
U (Spring)
3-0-9 HASS

Surveys major political, socioeconomic, and cultural changes in post-World War I Middle East. Investigates interwar independence struggles against Europe, followed by the emergence of American-Soviet rivalry, nationalist movements, and the growth of modern states and societies after 1945. Examines contemporary problems in historical perspectives: Arab-Israeli-Palestinian conflict, Lebanon War, oil and regional security, Iranian revolution, Islamic movements.

Staff

21H.621 Nationalism in the Middle East

Prereq.: —
U (Fall)
3-0-6 HASS

The Middle East's experience with nationalism in the twentieth century. Examines theories and varieties of nationalism, imperialism, and revolution. Focus on Arab nationalism: its origins; character of independence movements; place of Palestinian nationalism. Comparisons with other nationalisms in the developing world and in Europe, and with Islamic movements. Open to graduate students.

Staff

21H.631 Palestine and the Arab-Israeli Conflict

Prereq.: —
U (Spring)
3-0-9 HASS

Looks at the history of the Arab-Israeli conflict from the nineteenth century up to the present. The role of ideology, political actors, social history, economic and infrastructural problems, regional and international interaction is explored, as are the prospects for peace after the September 1993 Accord.

Staff

Comparative History Subjects

21H.905 Historical Fact, Historical Fiction

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-9 HASS

Examines the way that written accounts of the past reshape historical events by comparing alternative versions offered by historians, by contemporary observers such as journalists, politicians, and social critics, and by novelists. Consideration of the role of narrative in historical writing, the construction and identification of facts, and the discrimination between fact and fiction. Readings focus on the industrial revolution in nineteenth-century Britain and the end of the British Raj in India.

H. Ritvo

21H.909 Modernity, Postmodernity, and Capitalism

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
3-0-9 HASS

Examines definition of modernity. Considers whether postmodernity is a continuation or a break and examines the relation of both modernity and postmodernity to capitalism. Primary and secondary readings ranging across history, literature, art, and the social sciences include Baudelaire, Nietzsche, Benjamin, and Foucault. Inquiry made into topics such as progress, the avant-garde, fashions, the city, civil society, science, technology, the linguistic turn, and fundamentalism. Students encouraged to prepare and present topics of their own. Open to graduate students by arrangement.

B. Mazliah

21H.911 Comparative Slavery

Prereq.: —
U (Spring)
3-0-9 HASS

Critical examination of slavery in a variety of historical contexts. Ancient Greece and Rome, North and South America, Africa, the Ottoman Empire, and Russia are the main foci. Among the issues considered are causes and conditions of enslavement, methods of domination, cultures of resistance, abolition movements, and emancipation.

J. Saillant

21H.914 The Last Hundred Years: Topics in World History (Part II)

Prereq.: —
U (Spring)
3-0-9 HASS

Global history since 1945. Explores four major themes and their interrelationships: 1) population and human settlement; 2) the political and military balance of power; 3) the world economy; and 4) global environmental change.

S. Coe

21H.915 Notable Events of the Twentieth Century and Their Images

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
2-3-7 HASS

A study of four notable events of the twentieth century in terms of the images they created. Photographs, newsreels, TV news reports, documentaries, propaganda films, posters, paintings, and drawings illustrate the role of visual imagery in communicating ideas and emotions regarding these events. Analytical and theoretical material dealing with the historical changes in images and their use throughout the twentieth century is read in addition to historical materials dealing with each event. Students undertake a term-long project focused on the role of a particular visual medium.

W. B. Watson

21H.926 Humans, Animals, and Machines

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-9 HASS

Focuses, by means of a historical and evolutionary perspective, on the effort of humans to define themselves in comparison with (other) animals and machines. Also, considers the possibility of computer robots as a new species. Explores these issues by using literary, cinematic, philosophical, and historical texts; for example, novels and science fiction by Samuel Butler, H. G. Wells, and I. Asimov; treatises by Descartes and Turing; various historical treatments of automata and industrialization; and films such as 2001, *Blade Runner*, etc. Research by students on agreed-upon readings and topics encouraged.

B. Mazliah

Special Subjects in History

21H.931 Seminar in Historical Methods

Prereq.: Two History subjects
U (Spring)
2-0-7 HASS

An overview of "great books" in history. Examines different types of historical writing: political, social, cultural, demographic, biographical, comparative. Focuses on texts and contexts. Particular attention to works which have broken new ground in terms of their methodology and approach. Open to all students, but required of history majors and minors in junior year.

H. Ritvo

21H.932 Special Topics in History

Prereq.: —
U (Fall, IAP)
Units arranged
Can be repeated for credit

21H.933 Special Topics in History

Prereq.: —
U (Spring)
Units arranged
Can be repeated for credit

Individual supervised work for students who wish to study topics not covered in the regular history offerings. Before registering for this subject, a student must plan a course of study with some member of the History Faculty and secure approval from the Head of the History Faculty. HASS credit for Special Topics subjects awarded only by individual petitions to the Committee on Curricula. Normal maximum is 6 units; to count toward HASS Requirement, 9 units are required. Exceptional 9-unit projects occasionally approved.

Staff

Graduate Subjects in History**21H.951J Seminar on Early American History**

(Same subject as STS.114J)
Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: G (Fall)
3-0-9

A graduate reading seminar on American history prior to the Civil War. Topics vary from term to term. In general, the seminar explores the interplay of economic, technological, social, and political change in early America.

P. Maier, M. R. Smith

21H.952J Reading Seminar in American History, 1877 to the Present

(Same subject as STS.118J)
Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: G (Spring)
3-0-9

Aims to develop a teaching knowledge of the field through extensive reading and discussion of major works. The reading covers a broad range of topics — political, economic, social, and cultural — and represents a variety of historical methods. Students make frequent oral presentations and prepare a 20-page review essay.

C. Appy

During the course of this seminar, students will learn about the development of the American nation, and the emergence of a distinct American culture, sometimes called the "American Dream." Previous lectures may address issues in education (schools, private versus public, education by women, etc.), early childhood education,

21H.966J Marx, Darwin, and Freud

(Same subject as STS.120J)
Prereq.: —
G (Fall)
3-0-9

In-depth historical and critical study of the attempts of Marx, Darwin, and Freud to investigate the natural and cultural development of humans and society; these attempts are treated as problems in creativity, intellectual history, the history and philosophy of the cultural sciences, and social thought. Open to undergraduates.

B. Mazlish

21H.968J Nature, Environment, and Empire (New)

(Same subject as STS.175J)
Prereq.: —
Acad Year 1996-97: G (Fall)
Acad Year 1997-98: Not offered
2-0-10

An exploration of the relationship between the study of natural history, both domestic and exotic, by Europeans and Americans, and concrete exploitation of the natural world, focusing on the eighteenth and nineteenth centuries. Readings exemplify a variety of contemporary sources, including formal works on zoology and botany, travel journals, official reports, periodical literature, and agricultural manuals.

H. Ritvo

21H.977J Political Economy and Technology in the Middle East

(Same subject as 17.558J, 1.255J)
Prereq.: —
Acad Year 1996-97: G (Spring)
Acad Year 1997-98: Not offered
3-0-9 H-LEVEL Grad Credit

See description under subject 17.558J.

F. Moavenzadeh, N. Choucri, P. S. Khoury, R. Gakenheimer

21H.991J Proseminar: Theories and Methods in the Study of History

(Same subject as STS.102J)
Prereq.: Permission of instructor
G (Spring)
3-0-9

Topics include: agrarian history; class, race, and gender as historical categories; new cultural, new economic, and environmental history. Focuses on the development of social history in the twentieth century since the rise of the *Annales* school, examining modern approaches to European, Asian, and comparative history. (Open to qualified undergraduates.)

P. C. Perdue

21H.992 Advanced Topics in History

Prereq.: —
G (Fall)
Units arranged

21H.993 Advanced Topics in History

Prereq.: —
G (Spring)
Units arranged

Individual supervised work for graduate students on a topic or field of history not covered at the graduate level in the regular history offerings. Before registering for this subject, a student must plan a course of study with a member of the History Faculty and secure the approval of the head of the History Faculty.

Staff

For individual research in History, register for 21H.UR or 21H.URG. For History pre-thesis tutorial, register for 21H.ThT. For undergraduate thesis, register for 21H.ThU. Descriptions of these subjects can be found in the beginning of this section under 21.UR, 21.URG, 21.ThT, and 21.ThU on page 487.

Literature

Consult Literature Headquarters, 14N-409, for the most up-to-date information about requirements and subject offerings.

The subjects listed below are arranged in three graduated categories or tiers:

1) Introductory subjects (21L.001–21L.021), focused on major literary texts grouped in broad historical and generic sequences, all carrying HASS Distribution credit. Enrollment in HASS-D subjects is strictly limited to a maximum of 25 students per section.

2) Intermediate subjects (21L.422–21L.512), some carrying HASS Distribution credit and some limited to students who have already taken one literature course. Intermediate subjects explore literary forms in greater depth and center on historical periods, literary themes, or genres. Students are encouraged to consult individual instructors about prerequisite requirements.

3) Seminars (21L.701–21L.708), restricted to students who have taken at least two previous subjects in literature. Enrollment in seminars is strictly limited to a maximum of 12 students.

A supplement to this catalogue, available from the Literature Section offices, offers more detailed descriptions of all literature subjects and includes specific information about required texts, writing assignments, and examinations.

Introductory Subjects

21L.001 Foundations of Western Culture I: Homer to Dante

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 2

Studies a broad range of texts essential to understanding the two great sources of modern conceptions of the world and humanity's place within it: the ancient world of Greece and Rome and the Judeo-Christian world that challenged and absorbed it. Typical reading list includes Homer, Sophocles, Aristotle, Plato, Thucydides, Virgil, Lucretius, St. Augustine, and Dante.
Staff, J. Buzard

One subject in Literature

3-0-9 HASS

Individualized Reading of the Ancient Ages, including on such topics as the Homeric Cycle, the Iliad, the Odyssey, Greek Philosophy, Roman History, and Biblical Studies. Enrolment may be limited.
S. Raman

21L.002 Foundations of Western Culture II: Renaissance to Modernity

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 2

Complementary to 21L 001. A broad survey of texts — literary, philosophical, and sociological — studied to trace the growth of secular humanism, the loss of a supernatural perspective upon human events, and changing conceptions of individuality and social and communal purpose. Stresses appreciation and analysis of texts that came to represent the common cultural possession of our time.
A. Kibell

21L.003 Introduction to Fiction

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 1

Introduces prose narrative, both short stories and the novel. Examines the construction of narrative and the analysis of literary response.
R. Perry, W. Kelley

21L.004 Major Poets

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 1

Emphasis on the analytical reading of lyric poetry in England and the United States. Syllabus usually includes Shakespeare's sonnets, Donne, Keats, Dickinson, Frost, Eliot, Marianne Moore, Lowell, Rich, and Bishop.
J. Hildebidle, S. Tapscott

21L.005 Introduction to Dramatic Art

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 3

A study of the history of theater art and practice from its origins to the modern period, including its development in nonwestern cultures. Special attention to the relationship between theater and the intellectual, social, and political currents of its time. Readings include representative critical theory and description as well as major playscripts.
D. Henderson

21L.006 American Literature

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 1

Studies the national literature of the United States since the early nineteenth century. Considers novels, essays, and poems, focusing on efforts to define and reform a sense of American identity amidst increasing awareness of cultural diversity. Readings in the works of such writers as Hawthorne, Thoreau, Frederick Douglass, Dickinson, Frost, Faulkner, Maxine Kingston, and Amy Tan.
W. Kelley

21L.008 The Bible

Prereq.: —
U (Spring)
3-0-9 HASS

An introduction to major Biblical texts including Genesis, Exodus, Job, the prophetic and historic books of the Old Testament, and the Gospels and Epistles. Stresses the place of the Bible as foundation text for central religious, ethical, and political thinking. Comparative readings in related traditions, ancient, Near Eastern, and Middle Eastern. Investigation of the Bible as influence in later narrative, philosophic, and artistic traditions.
Staff

21L.009 Shakespeare

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 1

Close study of the major comedies, histories, and tragedies in the context of Renaissance thought, Elizabethan theatre, and the political and social setting of Shakespeare's age. Lectures and class discussions each week, supplemented by occasional reading of scenes and attendance at live or filmed performances.
P. Donaldson, M. Fuller, S. Raman, D. Henderson

21L.011 The Film Experience

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall, Spring)
3-3-6 HASS-D, Category 3

An introduction to narrative film, emphasizing the unique properties of the movie house and the motion-picture camera, the historical evolution of the film medium, and the intrinsic artistic qualities of individual films. Syllabus changes from semester to semester, but usually includes such directors as Griffith, Chaplin, Renoir, Ford, Hitchcock, De Sica, Fellini.
D. Thorburn, H. Jenkins

21L.012 Forms of Western Narrative

Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 1

Major narrative texts from diverse western cultures, beginning with Homer and concluding with at least one film. Emphasis on literary and cultural issues: on the artistic significance of the chosen texts and on their identity as anthropological artifacts whose conventions and assumptions are rooted in particular times, places, and technologies. Syllabus varies, but always includes a sampling of popular culture (folk tales, ballads) as well as at least three landmark narratives such as the *Iliad* or the *Odyssey*, *Don Quixote*, *Anna Karenina*, *Ulysses*, a classic film.
D. Thorburn

21L.021 Comedy

Prereq.: —

U (Spring)

3-3-6 HASS-D, Category 1

Surveys a range of comic texts from different media, the cultures that produced them, and various theories of comedy. Authors and directors studied may include Aristophanes, Shakespeare, Molière, Austen, Chaplin.

*W. Kelley***Intermediate Subjects****Genres and Themes****See also SP.433.****21L.422 Tragedy**

Prereq.: —

Acad Year 1996-97: **Not offered**

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Aspects of the tragic as a mode of literature and a quality of lived experience pursued in readings that extend from the warfare of the ancient world to the experiences of modern life. Authors include Aeschylus, Sophocles, Euripides, Shakespeare, Balzac, Tolstoy, Ibsen, Thomas Mann; selections from the Bible; theory of tragedy by Aristotle and Nietzsche. Includes viewing of at least two films.

*Staff***21L.430 Popular Narrative**

Prereq.: —

U (Fall, Spring)

3-3-6 HASS

Can be repeated for credit

Examines the relationship between popular and high culture and the problem of evaluating texts that tell stories. Treats a range of narrative and dramatic works as well as films. May be repeated once for credit, with permission of instructor. Topics for 1996-97: Fall Term: Hong Kong and Hindi Cinema. Spring Term: Alternative Cinema: Same-Sex Desire in International Film. Meets with 21F.816.

*G. Dancer, E. B. Turk***21L.432 American Television: A Cultural History**

(Subject meets with 21L.932)

Prereq.: —

U (Spring)

3-3-6 HASS

Television's evolution as a system of story telling and myth making, studied from anthropological, literary, and cinematic perspectives. Centers on prime-time commercial broadcasting but also examines the medium's technological and economic history as well as the theoretical perspectives from which scholars and policymakers have perceived our television system. Much required viewing as well as readings in media theory and cultural interpretation.

*D. Thorburn***21L.433 Major Film Directors**

Prereq.: —

Acad Year 1996-97: **Not offered**

Acad Year 1997-98: U (Spring)

3-3-6 HASS

Can be repeated for credit

Close study of films by major directors. Emphasizes cultural contexts and the distinctive styles and themes of each director. Syllabus varies from year to year but always includes films from different historical periods and, usually, a mix of American and international films by such figures as Renoir, Hitchcock, and Mizoguchi. May be repeated for credit by permission of instructor.

*D. Thorburn***21L.434 Science Fiction**

Prereq.: —

Acad Year 1996-97: **Not offered**

Acad Year 1997-98: U (Fall)

3-3-6 HASS

Traces the history of science fiction as a generic tradition in literature, media, and popular culture. Considers formal ideological and cultural approaches to the analysis and interpretation of science fiction texts.

*H. Jenkins***21L.435 Literature and Film
(Revised Content and Units)**

Prereq.: One subject in Literature or Film and Media Studies

U (Fall, Spring)

3-3-6 HASS

Can be repeated for credit

Investigates relationships between the two media, including film adaptations as well as works linked by genre, topic, and style. Explores how artworks challenge and cross cultural, political, and aesthetic boundaries.

Topics for 1996-97: Fall Term: Cultural Collaboration. Spring Term: Shakespeare in the Media.

*D. Henderson, P. S. Donaldson***21L.442J Black Women Writers: Texts and Critics**

(Same subject as SP.433J)

Prereq.: —

Acad Year 1996-97: U (Fall)

Acad Year 1997-98: **Not offered**

3-0-9 HASS

See description under subject SP.433J.
Staff

21L.444J New World Literature

(Same subject as 21F.820J)

Prereq.: —

U (Spring)

3-0-9 HASS-D, Category 1

See description under subject 21F.820J.
M. Fuller, N. Wey-Gomez

21L.445 Forms of Desire: Lesbian and Gay Literature

Prereq.: One subject in Literature or permission of instructor

U (Spring)

3-0-9 HASS

A history of the emergence of a conscious literature by/about lesbians and gay men. Charts the changes in the representation of lesbian/gay identity in Europe and America during the last hundred years; samples contemporary work from Asia, Africa, and South America; examines relations between sexuality, race, and class; explores the intersection of ideology and textual pleasure. Readings to include high literature — short stories, poetry, novels — as well as pulp fiction, pornography, drama, film, memoirs, rock lyrics, cartoons, personal testimony.

*Staff***21L.448J Darwin and Design**

(Same subject as 21W.739J)

Prereq.: —

U (Fall)

3-0-9 HASS-D, Category 2

In *Origin of Species*, Darwin provided a model for understanding the existence of objects and systems manifesting evidence of design without positing a designer, of purpose and mechanism without intelligent agency. Texts deal with pre-Darwinian and later treatment of this topic within literature and speculative thought since the eighteenth century, with some attention to the modern study of "feedback mechanism" in artificial intelligence. Readings in Hume, Voltaire, Malthus, Darwin, Butler, Hardy, H. G. Wells, and Freud.

J. Paradis

21L.449 The Literature of Environmental Concern

(Revised Content)

Prereq.: —

U (Spring)

3-0-9 HASS-D, Category 2

A brief history of conflicting ideas about mankind's relation to the natural environment as exemplified in works of poetry, fiction, and discursive argument from ancient times to the present. What is the overall character of the natural world? Is mankind's relation to it one of stewardship and care, or of hostility and exploitation? Readings include Aristotle, *The Book of Genesis*, Shakespeare, Descartes, *Robinson Crusoe*, Swift, Rousseau, Wordsworth, Darwin, Thoreau, Faulkner, Lovelock's *Gala*.

A. Kibel

21L.450 Literature and Ethical Values

Prereq.: One subject in Literature

U (Spring)

3-0-9 HASS

Examines competing ethical concepts and the ethical implications of certain actions and commitments by close reading of literary works. Topics include: origins of morality, ideals of justice, the nature of the virtues, notions of responsibility, ethics and politics, the ethics of extreme situations. Argumentative texts by Plato, Aristotle, Machiavelli, Hobbes, Kant. Narrative texts by Aeschylus, Sophocles, Shakespeare, Herman Melville, Henrik Ibsen, Tolstoy, Dostoyevsky, Joseph Conrad, George Orwell, some Biblical materials.

A. Kibel

21L.451 Introduction to Literary Theory (New)

Prereq.: —

U (Spring)

3-0-9 HASS

Subject about the ways texts can be read and about the questions that we as readers ask of texts. Aims to provide students with a sense of the different critical approaches to literature developed in the course of this century. Topics include: structuralism and semiotics; post-structuralism and post-modernism; historicism and historicist paradigms; psychoanalysis and textuality; cultural criticisms.

S. Raman

Periods of World Literature**21L.460 Medieval Literature**

Prereq.: One subject in Literature

U (Fall)

3-0-9 HASS

Introduces literature of the Middle Ages, concentrating on such central writers and works as Boethius, St. Augustine, *Romance of the Rose*, Dante, Chaucer, and Boccaccio. Secondary reading on the social context of medieval literature. Enrollment may be limited.

S. Raman

21L.463 Renaissance Literature

Prereq.: One subject in Literature

U (Spring)

3-0-9 HASS

Readings are organized around topics (Renaissance Self-Fashioning, Courtship and Courtiership, Gender and the Emerging Individual) or literary genres (lyric, epic, drama, prose). Works drawn primarily from the Italian and English Renaissance, and may include such figures as Petrarch, Shakespeare, More, Jonson, Machiavelli, Castiglione, Milton, Spenser, Bacon, Donne, Sidney.

M. Fuller

21L.470 Eighteenth-Century Literature

Prereq.: One subject in Literature

U (Spring)

3-0-9 HASS

Examines the literary forms (novels, poems, letters, treatises, travel journals) of the century during which England became a modern nation state. Emphasizes these cultural issues: commercialization of art, city vs country, rise of the middle class, exploration and empire, effects of print culture, growth of capitalism, romantic love and marriage, party politics, gender stereotypes. Authors include Defoe, Astell, Pope, Swift, Montagu, Johnson, Smollett, Goldsmith, Wollstonecraft, Cook.

R. Perry

21L.471 Major English Novels

Prereq.: One subject in Literature

U (Fall)

3-0-9 HASS

Study of six to eight major English novels of the eighteenth, nineteenth, and twentieth centuries, beginning with Bunyan's *Pilgrim's Progress* and including works by such authors as Defoe, Richardson, Fielding, Sterne, Austen, the Brontës, Dickens, Hardy, Lawrence, Woolf, Joyce, and Doris Lessing. Discussion, frequent papers.

Staff

21L.472 Major European Novels

Prereq.: —

U (Fall)

3-0-9 HASS

A study of changing narrative forms in the nineteenth-century European novel. The changing fortunes of the heroic and romantic ideals. The motif of the outsider as a means for depicting social reality. Readings in Cervantes, Balzac, Stendhal, Flaubert, Dostoevsky, Tolstoy, Proust.

A. Kibel

21L.475 Irish Literature

Prereq.: One subject in Literature

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Exploration of Irish literature in this century, with particular but not exclusive emphasis on prose fiction. Readings usually include works by Frank O'Connor, Joyce, Flann O'Brien, Beckett, Edna O'Brien, Benedict Kiely, and John McGahern, among many others. Enrollment limited.

J. Hildebidle

21L.476 Romantic Poetry

Prereq.: One subject in Literature

U (Spring)

3-0-9 HASS

Close readings of the major British Romantic poets (Blake, Wordsworth, Coleridge, Byron, Scott, Burns, Shelley, Keats), along with some of the fiction writers during this period. Some attention to their literary and historical context. Discussion and several short papers.

Staff

21L.480J Russian Novel of the Nineteenth Century

(Same subject as 21F.872J)

Prereq.: —

Acad Year 1996-97: U (Spring)

Acad Year 1997-98: Not offered

3-0-9 HASS

See description under subject 21F.872J.

Staff

21L.481 Reading Victorian Culture

Prereq.: One subject in Literature

U (Spring)

3-0-9 HASS

An introduction to the culture of nineteenth-century Britain through a variety of texts, emphasizing the continuities between literature and other modes of discourse. A core list of works of major authors like Tennyson and George Eliot will be discussed in the context of journalism, scientific writing, travel literature, and related genres; visual materials will be introduced where relevant. Readings will also be connected by a common theme, such as nature or imperialism, which may vary from year to year.

J. Buzard

21L.484J Twentieth-Century Russian Literature

(Same subject as 21F.873J)

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

See description under subject 21F.873J.

S. Ketchian

21L.485 Twentieth-Century Fiction

Prereq.: One subject in Literature

U (Fall)

3-0-9 HASS

Tradition and innovation in representative fiction of the early modern period. Recurring themes: the role of the artist in the modern period, the representation of psychological and sexual experience, the virtues (and defects) of the aggressively experimental character of so many modern books. Works by such writers as Conrad, Kipling, Isaac Babel, Kafka, James, Lawrence, Mann, Ford Madox Ford, Joyce, Woolf, Faulkner, and Nabokov.

*D. Thorburn***21L.486 Twentieth-Century Drama**

Prereq.: One subject in Literature

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Reading and discussion of major modern plays (and some films) from Ibsen through Beckett and beyond. Features works by such authors as Shaw, Chekhov, Pirandello, Odets, Ionesco, Brecht, O'Neill, Pinter, Mrozek, Stoppard, Kaufman and Hart, and Mamet.

*D. Henderson***21L.487 Modern Poetry**

Prereq.: One subject in Literature

U (Fall)

3-0-9 HASS

Consideration of some substantial early twentieth-century poetic voices in America, notably Moore, H.D., Frost, Williams, Eliot, Stevens, and Pound. Enrollment limited.

*S. Tapscott***21L.488 Contemporary Literature**

Prereq.: One subject in Literature

U (Spring)

3-0-9 HASS

Fiction, drama, poetry, and film, mostly of the 1960s, 1970s, and 1980s. Focus on a wide range of themes, as well as on experiments with literary and theatrical technique.

*S. Tapscott***21L.489J Interactive and Non-Linear Narrative: Theory and Practice**

(Same subject as 21W.765J)

Prereq.: —

U (Spring)

3-0-9 HASS

See description under subject 21W.765J.

*J. Murray***21L.490J French Literature in Translation**

(Same subject as 21F.850J)

Prereq.: —

U (Spring)

3-0-9 HASS

See description under subject 21F.850J.

*E. B. Turk***American Literature**

See also 21L 006.

21L.501 The American Novel

Prereq.: —

U (Spring)

3-0-9 HASS

Works by major American novelists, usually beginning with Hawthorne or Melville and concluding with a contemporary novelist. Major emphasis on reading novels as literary texts, but attention as well to historical, intellectual, and political contexts. The syllabus varies from term to term, but many of the following writers are represented: Hawthorne, Melville, Twain, Cather, Wharton, James, Hemingway, Fitzgerald, Faulkner.

*J. Hildebidle***21L.504 Race and Identity in American Literature**

Prereq.: —

U (Fall)

3-0-9 HASS

The quest for identity in the writing of America's racial and ethnic minorities. Emphasis on the writers' problematic relation to the dominant values and traditions of the majority culture. Readings in Douglass, DuBois, Ellison, Wright, Baldwin, Hurston, others. Discussion, occasional brief lecture.

*W. Kelley***21L.512 American Authors**

Prereq.: One subject in Literature

U (Fall, Spring)

3-0-9 HASS

Examines in detail the works of three or four American authors. Through close readings of poetry, novels, or plays, addresses such issues as literary influence, cultural diversity, the writer's career. Topics for 1996-97: Fall Term: Modern Nature Poetry.

*C. Wolff, J. Hildebidle***Seminars****21L.701 Literary Interpretation**

Prereq.: Two subjects in Literature

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Can be repeated for credit

Introduces practice and theory of literary criticism. Seminar focuses on topics such as the history of critical methods and techniques, and the continuity of certain subjects in literary history. Limited to 12.

*Staff***21L.702 Studies in Fiction**

Prereq.: Two subjects in Literature

U (Fall, Spring)

3-0-9 HASS

Can be repeated for credit

Intensive study of a range of texts by a single author or by a limited group of authors whose achievements are mutually illuminating. Some attention to narrative theory, and biographical and cultural backgrounds. Topics for 1996-97: Fall Term: Edith Wharton and Willa Cather — Women Novelists and their Analysis of Women's Dilemmas. Spring Term: Jane Austen. Limited to 12.

*C. Wolff, R. Perry***21L.703 Studies in Drama**

Prereq.: Two subjects in Literature

U (Fall, Spring)

3-0-9 HASS

Can be repeated for credit

Close study of two or three major dramatists, emphasizing the evolution of their work. Some attention to historical and theoretical accounts of the nature of drama. Topics for 1996-97: Fall Term: Renaissance Drama. Spring Term: Gender and Performance. Limited to 12.

*S. Raman, D. Henderson***21L.704 Studies in Poetry**

Prereq.: Two subjects in Literature

U (Spring)

3-0-9 HASS

Can be repeated for credit

Extensive reading of works of a few major poets. Emphasizes the evolution of each poet's work and the questions of poetic influence and literary tradition. Topic for 1996-97: Spring Term: Some American Women. Limited to 12.

*J. Hildebidle***21L.705 Major Authors**

Prereq.: Two subjects in Literature

U (Fall, Spring)

3-0-9 HASS

Can be repeated for credit

Close study of a limited group of writers. Topics for 1996-97: Fall Term: Melville and Morrison, Hemingway in Context. Spring Term: Joyce, Woolf, and Other Moderns. Limited to 12.

*W. Kelley, W. Watson***21L.706 Studies in Film and Media**

(Subject meets with 21L.906)

Prereq.: Two subjects in Literature and/or Film and Media Studies

U (Fall, Spring)

3-3-6 HASS

Can be repeated for credit

Intensive study of films of a particular period or genre, or films by a single director. All sections meet with graduate subject 21L.906, but assignments differ. Topics for 1996-97: Fall Term: (Section 1) Classical Film Theory: Problems in Aesthetics. Also meets with 24.113. Fall Term (Section 2): Film Analysis. Spring Term: Philosophical Themes. Also meets with 24.209.

H. Jenkins, I. Singer

21L.707 Problems in Cultural Interpretation

(Subject meets with 21L.907)

Prereq.: Two subjects in Literature and/or Film and Media Studies
U (Fall, Spring)
3-3-6 HASS
Can be repeated for credit

Studies in the relation between imaginative texts and the culture surrounding them. Emphasizes ways in which imaginative works absorb, reflect, and conflict with reigning attitudes and world views. Meets with graduate subject 21L.907, but assignments differ. Topics for 1996-97: Fall Term: Media in Public Life.

Spring Term: Visual Culture, Genre, and Creative Production.

H. Jenkins

21L.708 Technologies of Humanism

Prereq.: Two subjects in Literature

U (Fall)

3-3-6 HASS

Can be repeated for credit

Studies in the relations between literature (primarily of the Renaissance and Early Modern periods) and the technologies associated with its production and dissemination. Topic for 1996-97: From *Beowulf* to Hypertext: Humanisms and Their Media.

M. Fuller

21L.906 Studies in Film and Media (New)

(Subject meets with 21L.706)

Prereq.: Permission of instructor

G (Fall, Spring)

3-3-6

Can be repeated for credit

See description under subject 21L.706.

H. Jenkins, I. Singer

21L.907 Problems in Cultural Interpretation

(Subject meets with 21L.707)

Prereq.: Permission of instructor

G (Fall, Spring)

3-3-6

Can be repeated for credit

See description under subject 21L.707.

H. Jenkins

21L.932 American Television: A Cultural History (New)

(Subject meets with 21L.432)

Prereq.: Permission of instructor

G (Spring)

3-3-6

See description under subject 21L.432.

D. Thorburn

This writing course studies the complex history of American television, from its early days as a new medium to its current status as a major cultural force. It is designed for students who have done some basic reading or viewing before, but familiarity may be helpful. E. Coker, E. Potts, M. Harvey, S. Johnson

21L.996, 21L.997 Special Topics in Film and MediaPrereq.: Two subjects in Film and Media
U (Fall, Spring)
Units arranged
Can be repeated for credit

Open to qualified students who wish to pursue special projects with members of the film and media studies faculty. Individual projects or projects involving small groups of students are encouraged. Maximum of 6 units credit. Permission of Director of Film and Media Studies required.

H. Jenkins

21L.998, 21L.999 Special Topics in LiteraturePrereq.: Two subjects in Literature
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit

Open to qualified students who wish to pursue special studies or projects with members of the Literature faculty. Before registering for this subject, students must secure the approval of the Literature faculty chairman. HASS credit for Special Topics subjects awarded only by individual petitions to the Committee on Curricula. Normal maximum is 6 units; to count toward HASS Requirement, 9 units are required. Exceptional 9-unit projects occasionally approved.

P. Donaldson

For individual research in Literature, register for 21L.UR or 21L.URG. For Literature pre-thesis tutorial, register for 21L.ThT. For undergraduate thesis, register for 21L.ThU. Descriptions of these subjects can be found in the beginning of this section under 21.UR, 21.URG, 21.ThT, and 21.ThU on page 487.**Music**

Consult Music and Theater Arts Headquarters, 14N-207, for the most up-to-date information about requirements and subject offerings.

The Music subjects described below are grouped within six areas: introductory, history/literature, theory/composition, performance, special topics/advanced subjects, and music and media.**Although most students start with introductory subjects, those who have vocal or instrumental training or extensive exposure to music are encouraged to begin at a higher starting level.****Introductory Subjects****21M.011 Introduction to Western Music**Prereq.: —
U (Fall, Spring)
4-0-8 HASS-D, Category 3

Gives students a broad overview of Western music from the Middle Ages to the twentieth century, with emphasis on late Baroque, Classical, Romantic, and Modernist styles. Enhances the musical experience by developing listening skills and an understanding of diverse forms and genres. Major composers and works placed in social and cultural contexts. Weekly lectures feature demonstrations by professional performers, and introduce topics to be discussed in sections. Enrollment may be limited.

M. Marks, P. Ambush, M. Harvey, G. Ruckert, J. Makubuya

21M.030 Introduction to World MusicPrereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 3

An introduction to various types of musical practices found outside the Western art tradition. Music of Africa, the African diaspora, India, and Indonesia studied in terms of structure, performance practice, social use, aesthetics, and cross-cultural contact. Course work includes in-class instruction in West African drumming, Pygmy polyphony, Indian drum solfège, and Balinese interlocking parts. J. Makubuya

21M.051 Fundamentals of Music

Prereq.: —
U (Fall, Spring)
3-3-6 HASS

Elements of music are introduced by providing students with tools for training the voice, inner ear, and musical memory. Using the solfège system, students master intervals, major and minor scales and key signatures, take rhythmic and melodic dictation, and become familiar with the system of functional harmony. Includes weekly sightsinging lab and piano lab introducing students to score reading and technique.

P. Ambush, G. Ruckert

21M.052 Fundamentals of Music

Prereq.: —
U (Fall)
3-3-6 HASS

Emphasis is on the practical development of students' musical intuitions. Music fundamentals such as notation, scales, rhythmic structure, common forms, and harmony are introduced through close listening to and analysis of short compositions, along with experiments in musical composition within a computer environment. As a term project, each student studies and learns to perform a composition at his/her own ability level. Includes weekly sightsinging lab and piano lab introducing students to score reading and technique.

J. S. Bamberger

21M.065 Introduction to Music Composition (New)

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 3

A series of basic, progressive composition projects, combined with close listening to music from various cultures, styles, and historical periods (from medieval to rock, classical to nonwestern), leading to in-class performances of students' original works. No formal training is required. Begins with aural analysis and invented notations, proceeding through the fundamentals of form, pitch, and rhythm, utilizing conventional notation as it becomes necessary to express musical ideas. Focus on developing musical creativity and intuition, thereby providing effective means for expression through sound.

E. Ziporyn, J. S. Bamberger

21M.113 Developing Musical Structures

Prereq.: —
U (Spring)
3-3-6 HASS

What is the role of analysis and description in developing musical intuitions and perceptual problem-solving? The LogoMusic computer language is used as an environment for interrogating the bases of musical coherence. A term project includes designing a "tool kit" for procedural analysis of a significant work and for generating new pieces through procedural composition.

J. S. Bamberger

History/Literature**21M.201 Western Music to 1750**

Prereq.: Permission of instructor
U (Fall)
3-0-9 HASS

European art music from its foundation in antiquity through the Christian Middle Ages, the Italian Renaissance, and the Baroque. Written assignments offer the opportunity to write about the music itself and about topics in the history of musical style.

M. Marks

21M.205 Western Music after 1750

Prereq.: —
U (Spring)
3-0-9 HASS

A chronological survey of European art music during the Classic, Romantic, and Modern periods. Compositions analyzed in detail, and placed within their historical context. Most written assignments analyze musical works, so score-reading ability is helpful.

L. Lindgren

21M.215 American Music

Prereq.: Permission of instructor
U (Spring)
3-0-9 HASS

First half focuses on the role of music in North American society (especially the Boston area) during the eighteenth and nineteenth centuries. Second half surveys the music of twentieth-century North America, including "classical," Broadway show, film, and popular music, but excluding jazz.

M. Harvey

21M.226 Jazz

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 3

Historical survey beginning with early jazz, Joplin, Morton, Armstrong, Smith; continuing with a study of the Ellington, Basie, Goodman, and Herman bands; and concluding with a number of individual performers — Parker, Rollins, Monk, Holiday, Gillespie, Mingus, Davis — and some recent developments in writing and playing. Examination of jazz source music: early blues, spirituals, show tunes. Some investigation of jazz-derived musics: post-World War II pop and rock. Enrollment may be limited.

M. Harvey

21M.230 Vivaldi, Bach, and Handel

Prereq.: —
U (Fall)
3-0-9 HASS

Representative works of three great composers who wrote at the culmination of the Baroque era in music are examined and related both to compositions by their precursors and societal and intellectual developments of the time in Italy, Germany, and England. Score-reading ability helpful.

L. Lindgren

21M.240 Haydn, Mozart, and Beethoven

Prereq.: Permission of instructor
U (Spring)
3-0-9 HASS

A study of musical life during the second half of the eighteenth and early nineteenth centuries through representative works of these composers. Emphasis on harmonic, melodic, and structural development in relationship to intellectual, artistic, and social patterns of the period. Required reading and listening assignments.

L. Lindgren

21M.250 Schubert to Mahler

Prereq.: Permission of instructor
U (Fall)
3-0-9 HASS

A survey of the principal developments in musical style during the nineteenth century. Works for consideration in weekly class discussions drawn from the music of Beethoven, Schubert, Schumann, Brahms, Berlioz, Chopin, Liszt, Wagner, Verdi, Richard Strauss, and Mahler. Required reading and listening assignments.

L. Lindgren

21M.262 Twentieth-Century Music

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)
3-0-9 HASS

A survey of major works of the twentieth century, beginning with Schoenberg, Stravinsky, Bartok, and Ives; continuing with Varese, Webern, Hindemith, Copland, Sessions, Britten, Prokofiev, and Dallapiccola, and closing with some recent music.

E. Ruehr

21M.273 Operas of Mozart, Verdi, Wagner

Prereq.: —
U (Spring)
3-0-9 HASS

Focuses on the way in which music has interpreted and enriched three dramatic texts set by each composer. A framework is established by a survey of three Baroque operas at the beginning of the term, and three twentieth-century works at the end. Available videotape performances serve as the basis for listening assignments and analytical papers.

M. Marks

21M.284 Film Music

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-3-6 HASS

A chronological survey of styles and functions of music in American and European films. The first half covers nineteenth-century forerunners, the silent film, and music in synchronized sound films up to 1950. The second half focuses on innovative uses of music from the 1950s up to the present. Related topics include: theories of film music, specialized genres (musical, documentaries, animated films), and the impact of video. Listening, reading, and viewing assignments serve as the basis for papers and class discussion. Some background in the study of film and/or music is helpful.

*M. Marks***21M.291 Music of India**

Prereq.: —

U (Fall)

3-0-9 HASS

Presents the classical, popular, and folk music of North and South India, with the primary focus on the Hindustani traditions of the North. Through reading, listening, and vocal exercises, the classical forms of raga and tala are explained and practiced.

*G. E. Ruckert***21M.292 Music of Indonesia**

Prereq.: —

U (Spring)

3-0-9 HASS

The Indonesian archipelago is home to a wide variety of cultures and musical traditions, many of them largely unknown in the West. From the gamelan percussion orchestras of Bali and Java to the indigenous folk traditions of Sumatra and Borneo, as well as western-influenced pop and street traditions, subject provides an introduction to these fascinating, intricate musics. Includes ongoing instruction culminating in a small performance.

*E. Ziporyn***Theory/Composition****21M.301 Harmony and Counterpoint I**

Prereq.: 21M.051 or 21M.052 or permission of instructor

U (Fall, Spring)

3-3-6 HASS-D, Category 3

Basic writing skills in music of the common-practice period (Bach to Brahms). Work includes regular written assignments leading to the composition of short pieces, analyzing representative works from the literature, keyboard laboratory, and sight-singing choir. It is recommended that entering students have some concert music listening or playing background. Enrollment may be limited.

*E. Cohen, E. Ruehr, M. Harvey, G. Ruckert***21M.302 Harmony and Counterpoint II**

Prereq.: 21M.301

U (Fall, Spring)

3-3-6 HASS

A continuation of Harmony and Counterpoint I, including chromatic harmony and modulation, more elaborate contrapuntal textures, keyboard laboratory, and sight-singing choir.

*E. Cohen, P. Child, E. Ziporyn***21M.303 Writing in Tonal Forms**

Prereq.: 21M.302

U (Fall, Spring)

3-0-9 HASS

Written and analytic exercises based on nineteenth-century small forms and harmonic practice found in music such as Schubert Ländler and songs, Schumann small piano pieces and songs, and Chopin preludes and mazurkas.

*P. Child, E. Cohen***21M.304 Advanced Music Writing**

Prereq.: 21M.303

U (Spring)

3-0-9 HASS

Further written and analytic exercises in tonal music, focusing on large forms. Typically, students compose a sonata-form movement for piano, string quartet, or other small ensemble. Opportunities to write short works that experiment with the expanded tonal techniques of the late nineteenth and early twentieth centuries.

*P. Child***21M.340 Jazz Harmony and Arranging**

Prereq.: 21M.051 or 21M.052, 21M.266

U (Spring)

3-0-9 HASS

Basic harmony for students interested in acquiring practical skill in nonclassical music; also includes required listening, mainly jazz, as background for the written work. Serves as preparation for more advanced work in jazz and rock arranging and in the composition of popular songs. Permission of instructor required.

*M. Harvey***21M.351 Music Composition**

Prereq.: 21M.304

Acad Year 1996-97: U (Fall, Spring)

Acad Year 1997-98: Not offered

3-0-9 HASS

Can be repeated for credit

Directed composition of larger forms of original writing involving voices and/or instruments. Includes a weekly seminar in composition for the examination of major works from twentieth-century music literature and for the presentation and discussion of student work in progress. Students expected to produce at least one substantive work, performed in public, by the end of the term. Open to qualified undergraduates.

*E. Cohen***Performance**

Each of the following subjects earns six units. A total of 12 units is needed for a subject to count toward Institute Requirements in Humanities, Arts, and Social Sciences, by petition to the COC.

21M.401 MIT Concert Choir

Prereq.: —

U (Fall, Spring)

0-4-2

Can be repeated for credit

Rehearsals and performance of large-scale works for chorus, soloists, and orchestra — from the Passions and Mass of J.S. Bach to oratorios of our own time. Open to graduate and undergraduate students by audition.

*W. Cutter***21M.405 MIT Chamber Chorus**

Prereq.: —

U (Fall, Spring)

3-0-3

Can be repeated for credit

Rehearsal and performance of choral repertoire for small chorus, involving literature from the Renaissance to contemporary periods. Membership limited to 32 students by audition.

*W. Cutter***21M.410 Vocal Repertoire and Performance**

(Subject meets with 21M.515)

Prereq.: —

U (Spring)

3-0-3

Can be repeated for credit

For the young singer interested in the study and performance of the vocal literature with special attention to diction and vocal technique. Topics each semester include German Lieder or French melodies, as well as songs in the English language. Participation in MIT Chamber Chorus is required (no extra credit). Admission by audition. Meets with graduate subject 21M.515, but assignments differ.

*Staff***21M.421 MIT Symphony**

Prereq.: —

U (Fall, Spring)

0-4-2

Can be repeated for credit

An option available to members of the MIT Symphony Orchestra. Rehearsals prepare works for concerts and recordings. Analyses of musical style, structure, and performance practice are integrated into rehearsals as a means of enriching musical conception and the approach to performance. Likewise, additional scores of particular structural or stylistic interest are read whenever time permits.

D. M. Epstein

21M.425 MIT Concert Band

Prereq.: —
U (Fall, Spring)
0-4-2
Can be repeated for credit

An option available to members of the MIT Concert Band who are committed to the analysis of works in rehearsal and to the study of concert band performance issues. Such analysis and study is made in sessions before or after regular rehearsals and by means of attendance at performances given by other concert bands.

J. Corley

21M.442 MIT Festival Jazz Ensemble

Prereq.: —
U (Fall, Spring)
0-4-2
Can be repeated for credit

Study and performance of new works in the jazz idiom, primarily by Boston area composers (including MIT students and faculty). Membership by audition for trumpets, trombones, saxes, piano, guitar, bass, and percussion.

J. O'Dell

21M.445 Chamber Music Society

Prereq.: —
U (Fall, Spring)
0-4-2
Can be repeated for credit

Study of chamber music literature through analysis, rehearsal, and performance. Weekly seminars and coaching. Open to string, piano, brass, and woodwind players, and MIT students of early music in the Wellesley Collegium. By audition.

M. A. Thompson, D. Deveau, J. Harbison, J. Rife

21M.451 Studio Accompanying for Pianists

Prereq.: —
U (Fall, Spring)
Units arranged
Can be repeated for credit

Open by audition to pianists who wish to explore and develop their talents as accompanists. Pianists are paired with a music scholarship recipient and attend that student's private lesson each week. Accompanists prepare independently, rehearse with the student partner, and provide accompaniment at a juried recital or masterclass each term. Under supervision for music faculty and private lesson instructors, pianists may work with one or two scholarship students each term at 3 units each or one student in 21M.480/21M.512 for 6 units. Full-year commitment expected. Subject satisfies the performance requirement for pianists receiving music scholarships.

D. Deveau

21M.480 Advanced Music Performance

(Subject meets with 21M.512)
Prereq.: —
U (Fall, Spring)
1-2-3
Can be repeated for credit

Open by audition to students who demonstrate considerable technical and musical skills and who wish to develop them through intensive private study. Students must take a weekly lesson, attend a regular performance seminar, and participate without credit in an MIT ensemble. Full-year commitment required. Information about lesson fees, scholarships, and auditions available in Music Section Office. Meets with graduate subject 21M.512, but assignments differ.

M. A. Thompson, D. Deveau

Special Topics/Advanced Subjects**21M.500 Senior Seminar in Music**

Prereq.: 21M 201, 21M 205, 21M 302
U (Fall)
3-0-9 HASS

This advanced seminar aims at developing analytic and research skills in music. Focuses upon a small number of important works, which are studied in depth. One weekly three-hour meeting, with strong emphasis upon student presentations and discussion, and a substantial writing project.

P. Child

21M.505 Advanced Music Composition

Prereq.: —
Acad Year 1996-97: G (Fall, Spring)
Acad Year 1997-98: Not offered
3-0-9
Can be repeated for credit

Directed composition of larger forms of original writing involving voices and/or instruments. Includes a weekly seminar in composition for the examination of major works from twentieth-century music literature and for the presentation and discussion of student work in progress. Students expected to produce at least one substantive work, performed in public, by the end of the term. Open to qualified undergraduates.

Composition Faculty

21M.512 Advanced Music Performance

(Subject meets with 21M.480)
Prereq.: —
G (Fall, Spring)
1-2-3
Can be repeated for credit

Meets with undergraduate subject 21M.480, but assignments differ. See description under subject 21M.480.

M. A. Thompson, D. Deveau

21M.515 Vocal Repertoire and Performance

(Subject meets with 21M.410)
Prereq.: —
G (Fall, Spring)
3-0-3
Can be repeated for credit

Meets with undergraduate subject 21M.410, but assignments differ. See description under subject 21M.410.

J. Oliver

21M.531, 21M.536 Special Topics in Music

Prereq.: Any two subjects in Music
U (Fall, Spring)
Units arranged
Can be repeated for credit

21M.533, 21M.538 Special Topics in Music

Prereq.: Any two subjects in Music
U (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Open to qualified students who wish to pursue special studies or projects with members of the Music Section. Students electing this subject must secure the approval of the chairman of the Music Section. HASS credit for Special Topics subjects awarded only by individual petitions to the Committee on Curricula. Normal maximum is 6 units; to count toward HASS Requirement, 9 units are required. Exceptional 9-unit projects occasionally approved. Consult Music Section Office.

21M.539 Advanced Topics in Music

Prereq.: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit

Opportunity for advanced study of musical topics not covered by the regular subject listings. Students seeking an individual program of study with a particular faculty member must also obtain the approval of the Section Head. Consult Music Office for Departmental Form.

21M.540 Selected Topics in Music

Prereq.: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit

Opportunity for study of musical topics not covered in the regular curriculum, particularly experimental subjects offered by permanent and visiting faculty.

21M.542 IAP Music Topics

Prereq.: Permission of instructor
U (IAP)
Units arranged

Opportunity for study of musical topics not covered by the regular subjects listings. Includes experimental subjects offered by permanent and visiting faculty. Students seeking an individual program of study with a particular faculty member must also obtain the approval of the Section Head. Consult Music Office for Departmental Form.

Consult Music Office for Departmental Form.

21M.545, 21M.546 Research in Music

Prereq.: —
U (Fall, Spring, Summer)
Units arranged

21M.547 Research in Music

Prereq.: —
G (Fall, Spring, Summer)
Units arranged

Directed research on problems occurring in the production, perception, or cognition of music, aided by the techniques and discipline of science and engineering. Individual or group work. Available also to research assistants for non-thesis work. May be repeated for credit with permission.

Coordinator: B. L. Vercoe.

Music and Media**21M.565J Writing for Computer Performance**

(Same subject as MAS.642J)
Prereq.: 21M 566J
G (Spring)
3-0-6 H-LEVEL Grad Credit

See description under subject MAS.642J.
B. Vercoe

21M.566J Audio Processing by People and Machines

(Subject meets with MAS.241, MAS.641J)
Prereq.: MAS 510
G (Fall)
3-0-6 H-LEVEL Grad Credit

See description under subject MAS.241.
B. Vercoe

21M.570 Computer Music Composition

Prereq.: 21M 565J
G (Fall, Spring)
3-6-3 H-LEVEL Grad Credit
Can be repeated for credit

Directed composition of larger forms of original writing using computer-processed sound, to be performed either alone or with voices and/or instruments. Includes a weekly seminar in composition for the examination of major works from twentieth-century music literature and for the presentation and discussion of student works in progress. Students expected to produce at least one substantive work to be performed in public by the end of the term. Open to qualified undergraduates.

B. L. Vercoe

21M.580J Musical Aesthetics and Media Technology

(Same subject as MAS.825J)
Prereq.: Permission of instructor
G (Fall)
3-3-3 H-LEVEL Grad Credit

See description under subject MAS.825J.
T. Machover

21M.581J Projects in Media and Music

(Same subject as MAS.826J)
Prereq.: 21M 580J
G (Spring)
3-3-3 H-LEVEL Grad Credit
Can be repeated for credit

See description under subject MAS.826J.
T. Machover

Theater Arts

Consult Theater Arts Headquarters, 14N-207, for the most up-to-date information about requirements and subject offerings.

The subjects listed below are arranged in five sections: Foundation subjects; History and Theory subjects; Intermediate subjects; Practice subjects; and Special Topics/Advanced subjects. For subjects dealing with the literature of the theater, see 21L.009, 21L.021, 21L.422, 21L.486, 21L.703 in Literature; and 21F.842 in Foreign Languages and Literature.

Foundation Subjects**21M.601 Foundations of Theater History**

Prereq.: —
U (Spring)
3-0-6 HASS-D, Category 3

A study of theater practice and theory across cultures and in various periods. Readings in theatrical literature, criticism, and theory of diverse historical periods and civilizations, including Europe, Asia, Africa, and the Americas, as well as contemporary approaches to a construction of theater in feminist, ethnic, gay and lesbian writing. Guest speakers and recitation sections.

A. Brody

21M.611 Foundations of Theater Practice

Prereq.: —
U (Fall)
3-3-6 HASS-D, Category 3

An introduction to the ideas, skills, and aesthetic issues which comprise the creation of the theatrical event. Guest artists and faculty members introduce the work of different disciplines such as directing, stagecraft, design, acting, dramaturgy, or criticism. Readings, in-class exercises, and scheduled work in design and/or performance studios help students understand and experience the basic creative impulse in each area. Each student develops a portfolio of analysis and research.

B. Cotto-Escalera

21M.621 Theater and Cultural Diversity in the US

Prereq.: —

U (Fall)

3-0-9 HASS-D, Category 3

A study of contemporary North American theater movements and selected individual works that are organized around issues of ethnic and socio-cultural identity. Class lectures and discussions analyze samples of African-American, Chicano, Asian-American, Puerto Rican and Native American theater taking into consideration their historical and political context. Performance exercises help students identify the theatrical context and theatrical forms and techniques used by these theaters.

*B. Cotto-Escalera***History and Theory****21M.650 History of European Theater to 1700**

Prereq.: —

U (Spring)

3-0-9 HASS

A study of the history of European theater practice and theory from the pre-Greek period through the seventeenth century. Readings include representative playscripts, theories, and criticism.

*A. Brody***21M.651 History of European Theater 1700 to the Present**

Prereq.: —

Acad Year 1996-97: U (Fall)

Acad Year 1997-98: Not offered

3-0-9 HASS

Study of the history of European theater practice and theory from the seventeenth century to the present. Readings include representative playscripts, theories, and criticism.

*M. Ouellette***21M.653 History of North American Theater**

Prereq.: —

U (Fall)

3-0-9 HASS

A study of the history of theater practice and theory in North America from colonial times to the present. Readings include representative playscripts, theories, and criticism.

*T. De Frantz***21M.654 Selected Studies in Theater**

Prereq.: —

U (Spring)

3-0-9 HASS

Focused study of a specific non-European or North American theater, its practice and theory. A semester's work may center on the theater of a particular culture such as Asia, Africa, Latin America, or particular theater forms such as feminist, Afro-American, Latino, gay and lesbian.

*B. Cotto-Escalera***Intermediate Subjects****21M.655 Script Analysis**

Prereq.: One introductory subject in acting or design

U (Fall)

3-0-9 HASS

Detailed study of selected playscripts for actors, directors, and designers focusing on structural, thematic, and aesthetic components, and the problems of translating conceptual material to its active, visual life in preparation and performance. Students study three texts from a range of periods and styles over the course of the semester. The final project includes an analysis of a fourth text of the student's choosing from the point of view of one particular field of theater practice.

*M. Ouellette***21M.659 Production Seminar**

Prereq.: —

U (Fall)

3-0-6 HASS

Seminar pursues detailed study of a particular playtext or theme and is related to some planned production activity during the following Independent Activities Period. Seminar activities may include guest speakers from various disciplines who approach some aspect of the playtext or theme from the perspective of their fields; various theatrical practitioners; and critical and scholarly presentations by seminar members. Participation in the IAP production is not required.

*J. Sonenberg***21M.665 Contemporary Latin American Theater**

(New)

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Explores Latin America's cultural richness and socio-political diversity through the work of major Latin American playwrights. Students experience Latin American collective creation methods through classroom exercises. Subject is a blend of academic study and theatrical play. Students have the option of doing reading and writing assignments in Spanish.

*B. Cotto-Escalera***21M.702 Advanced Musical Performance**

Contact Instructors with 21M.700

U (Fall, Spring)

Can be repeated for credit

Meets with 21M.700

Assignments differ, see description in contact 21M.700

A. Thompson, S. Covino

Practice Subjects**21M.700 Introduction to Acting**

Prereq.: —

U (Fall, Spring)

4-0-5 HASS

Explores the actor's tools: the body, the voice, the mind, the imagination, and the essential self. Through studio exercises, students address issues of honesty and creativity in the theatrical moment, and begin to have a sense of their strengths and limitations as communicating theatrical artists. Provides an opportunity for students to discover their relationship to "the other": in the acting partner, the group, the environment, and the audience. Regular readings in acting theory also put studio work in context.

*M. Ouellette, K. Mancuso, K. Dunkelberg***21M.702 Voice and Speech for the Actor (New)**

Prereq.: 21M.700

U (Fall, Spring)

4-0-5 HASS

Can be repeated for credit

Concentrates upon freeing the natural voice, culminating in the actor's ability to work in any style. The whole progression of Linklater's approach to voice is taught. Taught by Shakespeare and Company staff.

*J. Sonenberg***21M.704 Musical Theater Workshop (New)**

Prereq.: 21M.700 or previous experience in musical theater required

U (Fall, Spring)

4-0-5 HASS

Intermediate workshop designed to introduce students to the art and technique of musical theater performance. Movement, singing, and acting are explored during the semester, with a focus on the use of the body as an expressive tool. Builds on understanding of how musicals are composed and the nature of the actor's contribution to this dynamic form.

*T. DeFrantz***21M.705 The Actor and The Text**

Prereq.: 21M.700 or permission of instructor

U (Fall, Spring)

4-0-5 HASS

Gives students who have begun the process of bringing themselves to a dramatic moment the opportunity to apply their skills to scripted material. Studio work in this class further develops the completeness, spontaneity, and honesty of expression of the actor's body, imagination, and voice; it introduces written material and the problems of synthesizing the self, the moment, and the scripted word. Weekly rehearsals with a scene partner.

J. Sonenberg, M. Ouellette

21M.706J Identity Politics in Performance (New)

(Same subject as SP.471J)
Prereq.: 21M.700 or permission of instructor
U (Fall)
4-3-2 HASS

In this performance workshop, students engage in the creation of theatrical material that explores current political and academic debates on identity issues. Includes practical performance work; discussion of selected readings about identity politics in performance; and study of dramatic texts, videos, and performances that focus on identity issues. Each semester focuses on a different theme (gender, class, race, or sexual orientation).
B. Cotto-Escalera

21M.707 Actor-Created Theater

Prereq.: 21M.700 or permission of instructor
U (Fall)
4-3-2 HASS

Develops the performer as creator of the theatrical event. Proposes ensemble work and collective creation of a performance in progress. Designed to help students develop a working process; to offer students the opportunity to collaborate in the creation of a "new work" born of their own ideas, motivations, and inspirations; and to support the struggle to find new language for that unique working relationship. Requires outside work with others.
K. Mancuso

21M.731 Principles of Design

Prereq.: —
U (Fall)
3-3-3 HASS
Can be repeated for credit

Deals with more advanced design theories and textual analysis. Emphasis on script analysis in general, as well as from a designer's perspective. Students also refine technical skills in rendering and presentation, historical research, and analysis. Class sessions include interaction with student/faculty directors and other staff designers. Goal is for students to approach text with a fresh vision and translate that vision into design for performance.
W. Fregosi, E. Darna, L. Held

21M.735 Design for the Theater

Prereq.: 21M.731 or permission of instructor
U (Fall, Spring)
3-3-3 HASS
Can be repeated for credit

Intensive study in the principles and execution of one particular area of theater design. Focus on lighting, scenic, and costume design rotates each semester. Substantial participation in at least one project in the semester productions of Dramashop, Shakespeare Ensemble, or other production with the approval of the instructor. Fall Term: Costume Design. Spring Term: Scenic Design.
W. Fregosi, E. Darna, L. Held

21M.740 Introduction to Stagecraft

Prereq.: —
U (Spring)
3-3-3 HASS

Introduces students to the variety and scope of stagecraft while they learn basic shop skills. Students develop shop vocabulary and learn basic skills, including the safe use of all shop machines, basic handwork skills, names and uses of tools, and an overview of the various activities that go on in each shop. In each seven-week segment, student complete a project that uses all basic skills.
W. Fregosi, E. Darna, L. Held

21M.781 Playwriting I

Prereq.: —
U (Fall, Spring)
3-3-6 HASS

An introduction to the craft of writing for the theater. Through weekly exercises and work on a sustained piece, students explore the problems of scene structure, action, and their relation to the dialogue. Class meetings include examination of produced playscripts and discussion of student work.
L. Harrington, A. Brody

21M.785 Playwrights' Workshop

Prereq.: 21M.781 or permission of instructor
U (Spring)
3-2-7 HASS
Can be repeated for credit

Continued work in the development of playscripts for the theater. Writers work on sustained pieces in weekly workshop meetings, individual consultation with the instructor, and in collaboration with student actors, directors, and designers from the Dramashop and Shakespeare Ensemble. Fully developed scripts will be eligible for inclusion in the Playwrights' Workshop Production.
A. Brody

21M.790 The Director's Craft

Prereq.: 21M.700 and 21M.655 or permission of instructor
U (Fall)
3-3-3 HASS

Explores several models of directing, each with its unique structures, philosophy, terminology, and techniques. Exploration is intended to lead to the development of an individual voice for each student and clarity in his/her directorial point of view. Class sessions concentrate on how a point of view is arrived at through analysis of material and the way the results are rendered with the basic tools of theater. All points of view are honored as long as they can be actively supported by the work.
J. Sonenberg

21M.795 Play Production for Directors

Prereq.: 21M.790
U (Spring)
0-6-3 HASS

Leads students through the directorial process from a project's inception, through conceptualization, collaboration with designers and actors, and finally into production. Experimentation with presentational and representational styles of theater. Students examine a selection of material, some scripted, some not. Directors team up with designers to develop a unified design concept for the project. The directors use design elements and concepts to work with actors.
M. Ouellette

Special Topics/Advanced Subjects**21M.805 Theater Practicum**

Prereq.: At least one studio subject or permission of instructor
U (Fall, IAP, Spring)
0-5-1
Can be repeated for credit

Directed practice in acting, directing, or design on a sustained theater piece, either one-act or full length, from pre-rehearsal preparation to workshop production. Consult Theater Arts Office.

E. Darna

21M.830 Acting Techniques of Style (New)

Prereq.: 21M.700 and 21M.705
U (Fall, Spring)
4-0-5 HASS
Can be repeated for credit

Topics vary from term to term. Subject concentrates on Shakespeare: incorporating a freed body and voice, and looking at the structure of the verse and the actor/audience relationship. In the Spring, subject focuses on modern, Restoration, and twentieth-century plays, juxtaposing different periods and styles.
T. Packer

21M.851 Special Topics in Drama

Prereq.: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit

21M.852 Special Topics in Drama

Prereq.: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Designed to allow students to pursue topics of interest as independent study. Enrollment requires approval of the Director of Theater Arts. HASS credit for Special Topics subjects awarded only by individual petitions to the Committee on Curricula. Normal maximum is 6 units; to count toward HASS Requirement, 9 units are required. Exceptional 9-unit projects occasionally approved.
B. Cotto-Escalera

21M.863 Advanced Topics in Theater Arts

Prereq.: Any two subjects in Theater Arts or permission of instructor

U (Fall, IAP, Spring)

Units arranged

Can be repeated for credit

Opportunity for advanced study in theater arts not covered by the regular subject listings. Includes experimental subjects offered by permanent and visiting faculty. Students seeking an individual program of study with a particular faculty member must also obtain the approval of the Director of Theater Arts. Consult Theater Arts Office.

T. De Frantz

21M.871 Selected Topics in Theater Arts

Prereq.: —

U (Fall, Spring)

Units arranged

Can be repeated for credit

Opportunity for study of topics in theater arts not covered by the regular subject listings, particularly experimental subjects offered by permanent and visiting faculty.

Consult Theater Arts Office.

21M.873 IAP Theater Arts Topics

Prereq.: Permission of instructor

U (IAP)

Units arranged

Opportunity for the study of theater arts topics not covered by regular subject listings, including experimental subjects offered by permanent and visiting faculty. Students seeking an individual program of study with a faculty member must also obtain the approval of the Director of Theater Arts. Consult Theater Arts Office for departmental form.

Staff

For individual research in Music and Theater Arts, register for 21M.UR or 21M.URG. For Music pre-thesis tutorial, register for 21M.ThT. For undergraduate thesis, register for 21M.ThU. Descriptions of these subjects can be found in the beginning of this section under 21.UR, 21.URG, 21.ThT, and 21.ThU on page 487.

Program in Writing and Humanistic Studies

Consult Program in Writing and Humanistic Studies Headquarters, 14E-303, for the most up-to-date information about requirements and subject offerings.

The subjects listed below are grouped in the three major areas of the Program in Writing and Humanistic Studies: 1) Exposition and Rhetoric; 2) Creative Writing; and 3) Science and Technical Writing. Within each area, introductory and advanced subjects are offered. Introductory subjects are designed for students with little or no experience in writing; advanced subjects are designed for students who have mastered the elements of sentence and paragraph structure and wish to develop greater competence in one or more special forms of writing.

Exposition and Rhetoric**Introductory****21W.730 Expository Writing**

Prereq.: —

U (Fall, Spring)

3-0-9 HASS, Phase One WRIT

For students who wish to write correct, clear, and effective prose. Attention to constructing effective sentences and paragraphs. Weekly writing assignments. Students' writing is discussed frequently in class. Readings include essays that exhibit a wide range of rhetorical techniques. Satisfies Phase I of the Writing Requirement.

Staff

21W.731 Writing and Experience

Prereq.: —

U (Fall, Spring)

3-0-9 HASS, Phase One WRIT

Students study the mechanisms by which fiction writers, essayists, and poets transform their experience into scenes, voices, and arguments. Attention given to sentence mechanics, paragraphing, punctuation, and word choice. In weekly workshops, students present their writing to members of the group, and extensive revising is required. Satisfies Phase I of the Writing Requirement.

C. Sawyer-Lauçanno, S. Alter

21W.732 Introduction to Technical Communication

Prereq.: —

U (Fall, Spring)

3-0-9 HASS, Phase One WRIT

Students intensively review the elements of sentence and paragraph structure; special problems in organizing and condensing technical information; and strategies for writing technical descriptions, definitions, classifications, and analyses. Other topics include writing to different audiences and preparing brief proposals, lab reports, and graphics. Several short writing assignments, frequent revisions, and two short oral presentations required. Satisfies Phase I of the Writing Requirement.

E. Campbell, C. Sawyer-Lauçanno

21W.733 Experimentation, Expression, and Experience: An Intensive Writing Workshop

Prereq.: —

U (IAP)

3-0-6 HASS

Designed to allow students to base their writing on their own experiences and to examine the link between experience and creative expression. Short readings, drawn from fiction and non-fiction, serve as models, demonstrating how a variety of writers have translated their personal experience into creative work. Writing assignments (three short papers; one longer one) are aimed at helping students express, in any prose genre, their own observations and experiences. Papers may be submitted for Phase I consideration.

C. Sawyer-Lauçanno

Advanced**21W.735 Writing and Reading the Essay**

Prereq.: 21W.730 or equivalent, or excellent writing sample and permission of instructor

U (Fall, Spring)

3-0-9 HASS-D, Category 1

Exploration of formal and informal modes of writing nonfiction prose. Extensive practice in composition, revision, and editing. Reading in the literature of the essay from the Renaissance to the present, with an emphasis on modern writers. Classes alternate between discussion of published readings and workshops on student work. Individual conferences.

S. Klingenstein, K. Manning

21W.738 Words

Prereq.: —

U (Fall)

3-0-9 HASS

Designed to increase appreciation of the verbal resources of English and improve skill in exploiting them. Considers such topics as the historical roots of the modern vocabulary, specialized and technical vocabularies, socially loaded language, the connection between word choice and tone, words as symbols. Regular written assignments stress the way that ideas are shaped by words.

H. Ritvo

21W.739J Darwin and Design

(Same subject as 21L.448J)

Prereq.: —

U (Fall)

3-0-9 HASS-D, Category 2

See description under subject 21L.448J.

*J. Paradis***21W.740 Writing Autobiography and Biography**

Prereq.: —

U (Fall)

3-0-9 HASS

Writing autobiography is used as a vehicle for improving style and studying the nuances of the language. Literary works are read with an emphasis on different forms of autobiography (essay, fiction, etc.). Class examines various stages of life, significant transitions, personal struggles, and memories translated into narrative prose, and discusses 1) what it means for autobiographer and biographer to develop a personal voice; and 2) the problems of reality and fiction in autobiography and biography. Students write in either or in both modes.

*E. Ettinger Chodakowska***21W.742 Writing About Racial Issues**

Prereq.: —

U (Spring)

3-0-9 HASS

The issue of race has preoccupied many writers both here and in the entire world. Students read William Faulkner, Toni Morrison, James Baldwin, Bernard Malamud, J. M. Coatzee among others, and write about racial and ethnic issues either in the form of biography or fiction. Students may write short or longer pieces. Their work is read and discussed in class and, if necessary, revised, incorporating comments and criticism elicited in discussion.

*E. Ettinger Chodakowska***21W.745 Advanced Essay Workshop**

(Revised Content)

Prereq.: Permission of instructor

U (Fall)

3-0-9 HASS

Can be repeated for credit

For students with experience in writing nonfictional prose. Advanced study of rhetorical strategies and techniques of prose style. Considerable writing and revision required. In addition to analyzing the work of class members, students read and discuss the work of distinguished essayists chosen to represent a range of prose styles, subjects, and biographical patterns.

*C. Wolff***21W.746 Humanistic Perspectives on Medicine: From Ancient Greece to Modern America (New)**

Prereq.: Permission of instructor

U (Spring)

3-0-9 HASS-D, Category 5

For students with experience in nonfiction prose and interest in the non-science side of medicine. Advanced study of the art of essay (form, style, techniques of persuasion) and practice of that form. Students are required to write substantial essays and to revise their work. Students read and discuss the writings of distinguished physicians from antiquity to the late twentieth century.

*S. Klingenstein***21W.747 Rhetoric**

(New)

Prereq.: —

U (Fall, Spring)

3-0-9 HASS

For students with a special interest in learning how to make forceful arguments in written form. Study of the forms and structures of argumentation, including organization of ideas, awareness of audience, methods of persuasion, evidence, factual vs emotional argument, figures of speech, and historical forms and uses of arguments.

*S. Strang***Creative Writing****Introductory**

See subject 21W.731.

21W.755 Writing and Reading Short Stories

Prereq.: —

U (Fall, Spring)

3-0-9 HASS

Introduction to the short story. Students write stories and short descriptive sketches. Readings from European and American stories from the eighteenth, nineteenth, and twentieth centuries. Class discussion of students' writing and of the assigned stories in their historical and social contexts.

*A. Desai, S. Alter, E. Cooney***21W.756 Writing and Reading Poems**

(21W.760)

Prereq.: —

U (Fall, Spring)

3-0-9 HASS

Examination of the formal structural and textual variety in poetry. Extensive practice in the making of poems and the analysis of both students' manuscripts and texts from sixteenth-through twentieth-century literature. Attempts to make relevant the traditional elements of poetry and their contemporary alternatives. Weekly writing assignments, including some exercises in prosody.

*P. Alexander***Advanced****21W.757 Fiction Workshop**

Prereq.: 21W.755

U (Fall, Spring)

3-0-9 HASS

Can be repeated for credit

For students interested in developing their understanding of the craft of fiction. Weekly workshop discussions of students' work focus on analysis of structure, style, and characterization. Emphasis on editing and revision. Reading and discussion of nineteenth- and twentieth-century authors, e.g. Babel, Carver, Chekhov, Faulkner, Kafka, Orwell, Marquez, Woolf.

*E. Cooney, H. Lee, S. Alter***21W.758 Genre Fiction Workshop**

Prereq.: A subject in writing short fiction or equivalent experience

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

Students write stories in such genres as science fiction, fantasy, horror, crime fiction, international thriller, and historical fiction. After a few introductory lectures and short assignments, most classes are devoted to round-table discussion of the students' work. Enrollment is limited to 15 students.

*J. Haldeman***21W.759 Writing Science Fiction**

Prereq.: —

U (Fall)

3-0-9 HASS

Students write and read science fiction and analyze and discuss stories written for the class. For the first eight weeks, readings in contemporary science fiction accompany lectures and formal writing assignments intended to illuminate various aspects of writing craft as well as the particular problems of writing science fiction. The rest of the term is given to round-table workshops on students' stories.

J. Haldeman

**21W.761 Mystery Writing
(New)**

Prereq.: 21W.730 or equivalent
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
3-0-9 HASS

Aims to teach students to analyze and emulate the narrative structures, compact fictional worlds, and character dynamics that typify the classic crime tale of ratiocination. Reading consists of one short text and a comprehensive selection of classic mystery stories written by such authors as Poe, Conan Doyle, John Dickson Carr, Agatha Christie, Josephine Tey. Some writing assignments ask students to analyze the assigned reading; even more ask students to create some of the elements of an original mystery — a time-line, a scene, a character, etc.

C. G. Wolff

21W.762 Poetry Workshop

Prereq.: —
U (Fall)
3-0-9 HASS
Can be repeated for credit

For students with some previous experience in poetry writing. Frequent assignments stress use of language, diction, word choice, line breaks, imagery, mood, and tone. Considers the functions of memory, imagination, dreams, poetic impulses. Throughout the semester, students examine the work of published poets. Revision stressed.

P. Alexander

21W.763 Modern Science Fiction

Prereq.: —
Acad Year 1996-97: U (Fall)
Acad Year 1997-98: Not offered
3-0-9 HASS

Students investigate novels, short stories, and poetry from "the Golden Age" to "neuromantic" science fiction: the 1950s to the present. Readings include *The Stars My Destination*, *Double Star*, *Neuromancer*, and *The Dispossessed*, as well as the previous year's Hugo or Nebular Award winner. Students write their own works of science fiction and submit critical analyses of each other's efforts.

J. Haldeman

21W.765J Interactive and Non-Linear Narrative: Theory and Practice

(Same subject as 21L.489J)
Prereq.: —
U (Spring)
3-0-9 HASS

Techniques of creating narratives that take advantage of the flexibility of form offered by the computer. Study of the structural properties of book-based narratives that experiment with digression, multiple points of view, disruptions of time and of storyline. Analysis of the structure and evaluation of the literary qualities of computer-based narratives including hypertexts, adventure games, and classic artificial intelligence programs like *Eliza*. With this base, students use authoring systems to model a variety of narrative techniques and to create their own fictions. Knowledge of programming helpful but not necessary.

J. Murray

21W.766J Writing by US Women of Color

(Same subject as SP.443J)
Prereq.: —
U (Fall)
3-0-9 HASS

Students read short stories by Native American, Latina, African-American, and Asian-American women writers and write their own stories and descriptive sketches. Discussion of the following themes: the reclaiming, reconstruction, and preservation of culture and ancestry as sources of power and resistance; storytelling and use of ethnic language as means of survival; use of indigenous myth and motif; shifting, contending, and multiple identities; and tensions between nationalist and feminist struggles for self-determination and self-definition.

H. Lee

21W.770 Advanced Fiction Workshop

Prereq.: Permission of instructor
U (Fall, Spring)
3-0-9 HASS
Can be repeated for credit

For students with some experience in writing fiction. Concentrates on the ways an author manipulates his or her audience in the creation of a particular vision of reality. Studies style; point of view; distinctions of time and space; stream-of-consciousness; all the strategies for making a work of art. Outside readings assigned on an individual basis.

A. Desai, E. Chodakowska

21W.771 Advanced Poetry Workshop

Prereq.: Prior manuscript submission required
U (Spring)
3-0-9 HASS
Can be repeated for credit

For students experienced in writing poems. Regular reading of published contemporary poets and weekly submission of manuscripts for class review and criticism. Students expected to do a substantial amount of rewriting and revision. Classwork supplemented with individual conferences.

P. Alexander

Science and Technical Writing**Introductory**

See subject 21W.732.

Advanced**21W.777 The Scientific Essay**

Prereq.: —
U (Fall, Spring)
3-0-9 HASS

Concerns the articulate expression of science in a broad cultural context. The nature of the essay and the special challenges of writing about science are topics of discussion. Classes are devoted to critiques of published essays and student essays alike. Readings are drawn from the essays of J. B. S. Haldane, E. B. White, Stephen Jay Gould, and David Quammen, among others.

B. Goldoftas

21W.780 Communicating in Technical Organizations

Prereq.: —
U (Fall, Spring)
3-0-9 HASS, Phase Two WRIT

An exploration of the role that communication plays in the work of the contemporary engineering and science professional. Emphasis is placed on analyzing how composing and publication contribute to work management and knowledge production, as well as on the "how-to" aspects of writing specific kinds of documents in a clear style. Topics include communication as organizational process, electronic modes such as e-mail and the Internet, the informational and social roles of specific document forms, writing as collaboration, the writing process, the elements of style, methods of oral presentation, and communication ethics. Case studies used as the basis for class discussion and some writing assignments. Several short documents, a longer report or article, and a short oral presentation are required.

C. Sawyer-Lauçanno

21W.781 Practicum in Science and Engineering Writing

Prereq.: —
U (Fall, Spring)
2-0-4

Designed as a practicum tied to a specific technical subject for students in that subject who wish to gain in-depth instruction in written and oral communication. Weekly writing assignments, frequent opportunities for revision, preparation of oral and written reports, training in discussion and leadership skills, and extensive peer review. Assignments pertain to the technical class to which the practicum is tied; some assignments highlight organization and managerial aspects of the technical project. Subject may require use of the Networked Educational Online System (NEOS). Enrollment limited to 15 students.

E. Barrett

21W.782 Science Journalism

Prereq.: —
U (Fall, Spring)
3-0-9 HASS

A practical introduction to the craft of science journalism. Class discussion examines important issues in communicating technical information to the public, such as the relationship among science, technology, and the media. Presentations by professional science journalists are featured. Students write weekly exercises, some of which are submitted for publication. Writing competence required.

B. Goldoftas

21W.783 Scientific and Engineering Writing for Phase II

Prereq.: —
U (Fall, Spring)
1-0-5 Phase Two WRIT

A modified version of 21W.780 designed exclusively for students who wish to complete Phase II of the Institute Writing requirement. Meets every other week.

C. Sawyer-Lauçanno, D. Custer

21W.785 Communicating in Cyberspace

Prereq.: —
U (Fall, Spring)
3-0-9 HASS

Analysis and authoring of cybertexts. Games, MUDs, World Wide Web home pages, multimedia essays, and other kinds of digital communication are studied in terms of traditional theories of rhetoric to articulate elements of the new cyber-rhetoric for digital/multi/hypermedia. Techniques of creating cybertexts for the communication of ideas and information. Study of the history and theory of contemporary computer communication. On the basis of this analysis, students design their own cybertexts for display and discussion. No prior knowledge of programming necessary.

E. Barrett

21W.790 Naturalist Writing

Prereq.: Permission of instructor
U (Fall)
3-0-9 HASS

Students write about nature in a variety of ways, aesthetic and technical, in essays and in technical documents. They study the responses to nature of nineteenth- and twentieth-century naturalists, such as Audubon, Darwin, Thoreau, Lorenz, Carson, and Goodall. They examine local publications and films of nature societies in New England, the Northwest, and the South, as well as such modern forms as the environmental impact statement and the technical report. Several short and two longer writing assignments on general and semitechnical subjects.

J. Paradis

21W.792 Science and Technical Writing Internship

Prereq.: 21W.780 or 21W.782
U (Spring)
3-0-9 HASS
Can be repeated for credit

Part-time internships in Boston-area media and industries are arranged for students wishing to develop professional writing and publishing skills. Students planning to take this subject must contact the instructor by November of the previous term.

J. Paradis

21W.793 Advanced Workshop in Scientific and Engineering Writing

Prereq.: Permission of instructor
G (Spring)
1-0-5

Offers graduate students who have writing projects under way an intensive review and step-by-step practice in technical writing. Examines major types of technical documents and reviews organization, grammar, style, format, graphics, and the scientific publishing process. Writing and revising assignments are adapted to the preparation of one or two major documents.

J. Morrison

21W.794 Graduate Writing Skills Workshop

Prereq.: —
G (IAP)
1-0-1

Draft a thesis proposal, thesis chapter, journal article, progress report, or specification, and review basics of engineering writing. Sessions cover the processes of organizing and drafting professional papers, improving writing style, and revising documents. Students determine own projects; each project increment receives instructor's editorial suggestions.

J. Paradis

21W.798, 21W.799 Special Topics in Writing

Prereq.: —
U (Fall, Spring)
Units arranged
Can be repeated for credit

Primarily for students pursuing writing advanced projects with the assistance of a member of the Writing Program. Students electing this subject must secure the approval of the Director of the Writing Program and its Committee on Curriculum. HASS credit for Special Topics subjects awarded only by individual petitions to the Committee on Curricula. Normal maximum is 6 units; to count toward HASS Requirement, 9 units are required. Exceptional 9-unit projects occasionally approved. 21W.798 is P/D/F.

A. P. Lightman

21W.800 Practicum in Expository Writing

Prereq.: —
U (Fall, Spring)
2-0-4

Designed as a practicum tied to a specific introductory subject (e.g., 9.00, 17.115J, 17.241) for students in that subject who wish to gain in-depth instruction in written and oral communication. Weekly writing assignments, frequent opportunities for revision, preparation of oral and written reports, training in informal discussion skills, and extensive peer review. Assignments pertain to the class to which the practicum is tied. Enrollment limited to 15 students per section.

E. Barrett

21W.801 Practicum in Social Science Writing

Prereq.: —
U (Fall)
2-0-4

Designed as a practicum tied to a specific advanced social science subject for students in that subject who wish to gain in-depth instruction in written and oral communication. Weekly writing assignments, frequent opportunities for revision, preparation of oral and written reports, training in discussion and leadership skills, and extensive peer review. Assignments pertain to the class to which the practicum is tied. Enrollment limited to 15 students per section.

E. Barrett

21W.802J Practicum in Engineering Writing and Oral Presentation—Quantitative Physiology: Cells and Tissues

(Same subject as 6.080J)
Prereq.: —
U (Fall)
2-0-4

A writing-extensive subject attached to 6.021J/2.791J offering an additional six units of elective credit to students who undertake written and oral assignments related to the technical material presented in 6.021J. Frequent writing assignments, with ample opportunities for revisions and editing; frequent opportunities for small-group interactions and oral reports intended to promote discussion and presentation skills. Each section limited to fifteen students. This subject may be used to complete Phase Two of the Writing Requirement.

E. Barrett, D. M. Freeman, T. F. Weiss

For individual research in Writing and Humanistic Studies, register for 21W.UR or 21W.URG. For Writing and Humanistic Studies pre-thesis tutorial, register for 21W.ThT. For undergraduate thesis, register for 21W.ThU. Descriptions of these subjects can be found in the beginning of this section under 21.UR, 21.URG, 21.ThT, and 21.ThU on page 487.

Please note: Philosophy subjects are listed under Course 24, Linguistics and Philosophy.

Course 22

Nuclear Engineering

For degree requirements, see listing in Chapter VII under the School of Engineering.

Undergraduate Subjects

22.UR Undergraduate Research Opportunities Program

Prereq.: —
U (Fall, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit

22.URG Undergraduate Research Opportunities Program

Prereq.: —
U (Fall, Spring, Summer)
Units arranged
Can be repeated for credit

The Undergraduate Research Opportunities Program is an excellent way for undergraduate students to become familiar with the Department of Nuclear Engineering. Student research as a UROP project has been conducted in areas of fission reactor studies, utilization of fusion devices, applied radiation research, and biomedical applications. Projects include the study of engineering aspects for both fusion and fission energy sources. UROP Department Coordinator: S. H. Chen.

22.ThU Undergraduate Thesis

Prereq.: —
U (Fall, Spring)
Units arranged
Can be repeated for credit

Program of undergraduate research, leading to the writing of an S.B. thesis, to be arranged by the student and appropriate MIT faculty member. See department undergraduate headquarters.

J. E. Meyer

22.002 Management in Engineering

Prereq.: —
U (Fall)
3-0-9

Engineering School-Wide Elective Subject. Description given at end of this chapter in SWE section on page 562.

J.-H. Chun

22.006 Computer Models of Physical and Engineering Systems

Prereq.: 18.03 or 18.034, 1.00
U (Spring)
3-1-8

Engineering School-Wide Elective Subject. Description given at end of this chapter in SWE section on page 999.

F. Peña-Mora

22.011 Seminar in Nuclear Engineering

Prereq.: —
U (Fall)
2-0-4

Surveys the range of topics covered by the Department. Introductory discussion of the basic phenomena of fission and fusion power, and related aspects of reactor design. The many applications of nuclear engineering for research in biology, earth sciences, medicine, and physics are discussed by guest lecturers from the appropriate discipline. A demonstration of the MIT Reactor as a research tool is given.

M. S. Kazimi, L. Porter

22.012 Seminar in Fusion and Plasma Physics

Prereq.: —
U (Spring)
2-0-4

Lectures and discussion introducing the range of topics relevant to plasma and fusion engineering. Introductory discussion of the economic and ecological motivation for the development of fusion power. Contemporary magnetic confinement schemes, theoretical questions, and engineering considerations are presented by expert guest lecturers. Tour of Plasma Fusion Center experimental facilities.

K. Molvig

22.013 Applications in Radiation Science and Technology

Prereq.: —
U (Fall)
2-0-4

A series of wide-ranging lectures examining diverse issues in current applications of radiation in industry, medicine, and environment. Typical topics: medical imaging, radiation cancer therapy, neutron activation analysis, neutron scattering and tomography, fission and fusion reactors, transport and management of environmental pollutants and radioactive materials, computer modeling, and simulation.

S. Yip, B. Rosen

22.02 Introduction to Applied Nuclear Physics

Prereq.: 8.02, 18.02
U (Fall)
3-0-9 REST

Basic concepts of nuclear physics with emphasis on radiation interactions with matter. Elementary quantum theory; properties of atomic nuclei; natural and induced radioactivity; cross sections for nuclear reactions; alpha-, beta-, and gamma-decay. Nuclear models. Slowing down and diffusion of neutrons. Nuclear reactions for fission and fusion power. Current applications in nuclear radiation science and technology.

L. Porter

22.021 Nuclear Reactor Physics

Prereq.: 22.02, 18.03
U (Fall)
4-0-8

Introduces fission reactor physics. Covers reactions induced by neutrons, nuclear fission, slowing down of neutrons in infinite media, diffusion theory, the few-group approximation, and point kinetics. Emphasizes the nuclear physics bases of reactor design and their relationship to reactor engineering problems. Three lecture hours per week meeting concurrently with graduate subject 22.211, plus a separate recitation; assignments and quizzes are different from those in 22.211.

K. F. Hansen

22.03 Engineering of Nuclear Systems

Prereq.: 22.02
U (Fall)
3-0-9

Introduces nuclear engineering in radiation applications and power plant design. Basic principles of nuclear physics, reactor physics, and environmental health physics; heat-transfer structural analysis, safety, and waste treatment are employed. Each student analyzes an individual nuclear engineering example to examine the application of different engineering disciplines. The results are summarized in a term paper and oral presentation. Lectures focus on the case of a fission reactor, with emphasis on applications of engineering disciplines.

M. W. Golay

22.031 Engineering of Nuclear Reactors

(Subject meets with 22.312)

Prereq.: 2.001, 2.51

U (Fall)

3-0-9

An undergraduate subject that meets with graduate subject 22.312. Same content but homework assignments and examinations differ. See description under subject 22.312.

*N. E. Todreas***22.033 Nuclear Systems Design Project**

(Subject meets with 22.33)

Prereq.: Permission of instructor

U (Spring)

2-9-4

Can be repeated for credit

See description under subject 22.33.

*N. E. Todreas***22.04 Radiation Effects and Uses**

Prereq.: 22.02

U (Spring)

3-0-9

Introduction to basic properties of ionizing radiations and their uses in medicine, industry, science, and environmental studies. Discusses natural and man-made radiation sources, energy deposition and dose calculations, various physical, chemical, and biological processes and effects of radiation with examples of their uses, and principles of radiation protection.

*J. C. Yanch***22.055 Biomedical and Industrial Applications of Radiation**

Prereq.: 22.04, 22.09

U (Fall)

4-0-8

Principles of radiation production, interaction, and major applications. Systematically discusses various radiation sources, radiation interaction with bulk matter, and computational techniques for radiation dosimetry and shielding design. Introduces various biomedical and industrial uses of radiation including magnetic resonance imaging.

*X. L. Zhou, D. G. Cory***22.061 Fusion Energy I**

(Subject meets with 22.601)

Prereq.: 8.03, 18.03

U (Fall)

3-0-9

An undergraduate subject that meets three lecture hours a week with graduate subject 22.601, but with different assignments and exams. See description under subject 22.601.

*J. P. Freidberg***22.069 Undergraduate Plasma Laboratory**

(Subject meets with 22.69)

Prereq.: 8.03 or 22.061 or permission of instructor

U (Spring)

1-4-7 Institute LAB

Meets with graduate subject 22.69, but assignments differ. See description under subject 22.69.

*K. W. Wenzel***22.070J Materials for Nuclear Applications**

(Subject meets with 22.70J, 3.070J, 3.711J)

Prereq.: 3.091

U (Spring)

3-0-9

An undergraduate subject that meets with graduate subject 22.70J. Same content, but assignments differ. See description under subject 22.70J.

*K. C. Russell***22.078 Nuclear Techniques in Environmental Analysis**

(Subject meets with 22.78)

Prereq.: 22.09 or permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

2-6-4

See description under subject 22.78.

*I. Olmez***22.084 Inventions and Patents**

Prereq.: 14.02

U (Fall)

3-0-6

Engineering School-Wide Elective Subject.

Description given at end of this chapter in SWE section on page 562.

*R. H. Rines***22.09 Principles of Nuclear Radiation Measurement and Protection**

Prereq.: 22.02

U (Spring)

2-6-4 Institute LAB

An undergraduate subject that combines lectures, demonstrations, and experiments.

Covers effects of radiation on persons; control of radiation exposure within applicable standards; theory and use of α , β , γ , and n detectors and spectrometers; use of isotopes, radiation shielding, and dosimetry. Includes demonstrations and experiments using the MIT research reactor, accelerators, and power reactors. Students have choices in the experiments they perform.

*L. M. Lidsky***22.091 Special Topics in Nuclear Engineering**

Prereq.: —

U (Fall, Spring, Summer)

Units arranged

Can be repeated for credit

For undergraduates who wish to conduct a one-term project of theoretical or experimental nature in the field of nuclear engineering, in close cooperation with individual staff members. Topics and hours arranged to fit students' requirements.

*J. E. Meyer***22.092 Engineering Internship**

Prereq.: —

U (Fall, Spring, Summer)

0-6-0 [P/D/F]

Can be repeated for credit

Provides academic credit for the first two Work Assignments of XXII-A students affiliated with the Engineering Internship Program. Students register for this subject twice. Students must complete both Work Assignments in order to receive the academic credit for this subject. Enrollment limited to students registered in Course XXII-A.

*J. E. Meyer***22.093 Special Topics in Nuclear Engineering**

Prereq.: —

U (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit

This subject is graded on a P/D/F basis and is otherwise equivalent to subject 22.091. Approval of the Course 22 Undergraduate Office is required prior to enrolling in 22.093.

*J. E. Meyer***Graduate Subjects****Nuclear Physics****22.101 Applied Nuclear Physics**

(22.111)

Prereq.: 22.02

G (Fall, Spring)

3-0-9 H-LEVEL Grad Credit

Fundamentals of nuclear physics for engineering students. Basic properties of the nucleus and nuclear radiations. Elementary quantum mechanical calculations of bound-states and barrier transmission probability. Nuclear shell model. Binding energy and nuclear stability. Interactions of charged particles, neutrons, and gamma rays with matter. Radioactive decays. Energetics and general cross-section behavior in nuclear reactions.

Fall Term: *K. Molvig*Spring Term: *S. H. Chen*

22.102 Engineering Principles for Nuclear Technology (New)

Prereq.: 2.001 and 2.51

G (Fall)

3-0-9 H-LEVEL Grad Credit

Derivation of the basic continuum models used to describe: energy transport in solids; mass, momentum, and energy transport in fluids; and stress, strain, and displacement behavior in solids. Discussion of various widely used simplifications to make the models more tractable (e.g., one-dimensionality, incompressibility, linear elasticity, etc.). Discussion of complications which arise such as turbulent transport processes, two-phase flow, plasticity, and multi-dimensions. Use of nuclear engineering applications as examples — from fission, fusion, and radiation science/technology.

J. E. Meyer

22.103 Microscopic Theory of Transport

Prereq.: 22.101

G (Spring)

3-0-9 H-LEVEL Grad Credit

Discusses basic physical mechanisms of particle and radiation transport due to microscopic collisions. Simple explanation of transport coefficients (e.g., diffusivity, viscosity, heat conductivity, electrical conductivity) and various nuclear cross sections. Derivation of the microscopic kinetic equation describing transport; the Boltzmann equation. Derivation of practical engineering fluid models (e.g., classical thermodynamics, the Navier Stokes equations, the neutron transport equations) from the kinetic model. Subject material elucidates the common roots of these widely different models.

S. Yip, J. Freidberg

Nuclear Reactor Physics

22.211 Nuclear Reactor Physics I

Prereq.: 18.076

G (Fall)

3-0-9 H-LEVEL Grad Credit

Introduces problems of fission-reactor physics, covering nuclear reactions induced by neutrons, nuclear fission, slowing down of neutrons in infinite media, diffusion theory, the few-group approximation, and point kinetics. Emphasizes the nuclear physical bases of reactor design and their relation to reactor engineering problems.

K. F. Hansen

22.212 Special Problems in Advanced Nuclear Reactor Physics

Prereq.: 22.211

G (Spring)

3-0-9 H-LEVEL Grad Credit

Current methods for predicting neutron behavior in complex geometrical and material configurations. Collision theory; the transport equation and methods for solving it; group diffusion theory and its application to depletion. Applies homogenization, synthesis, and nodal methods to reactor analysis.

A. F. Henry

Nuclear Reactor Engineering

22.312 Engineering of Nuclear Reactors

(Subject meets with 22.031)

Prereq.: 2.001 and 2.51

G (Fall)

3-0-9 H-LEVEL Grad Credit

Engineering principles of nuclear reactors, emphasizing power reactors. Power plant thermodynamics, reactor heat generation and removal (single-phase as well as two-phase coolant flow and heat transfer), and structural mechanics. Engineering considerations in reactor design.

N. E. Todreas

22.313 Thermal Hydraulics in Nuclear Power Technology

Prereq.: 22.312

Acad Year 1996-97: G (Spring)

Acad Year 1997-98: Not offered

3-0-9 H-LEVEL Grad Credit

Advanced topics emphasizing thermo-fluid dynamic phenomena and analysis methods. Single-heated channel-transient analysis.

Multiple-heated channels connected at plena. Loop analysis including single and two-phase natural circulation. Kinematics and dynamics of two-phase flows with energy addition. Boiling, instabilities, and critical conditions. Sub-channel analysis.

J. E. Meyer

22.314J Structural Mechanics in Nuclear Power Technology

(Same subject as 1.56J, 2.084J, 13.14J)

Prereq.: Permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Spring)

3-0-9 H-LEVEL Grad Credit

Structural components in nuclear power plant systems, their functional purposes, operating conditions, and mechanical-structural design requirements. Combines mechanics techniques with models of material behavior to determine adequacy of component design.

Considerations include mechanical loading, brittle fracture, inelastic behavior, elevated temperatures, neutron irradiation, and seismic effects.

J. E. Meyer, O. Buyukozturk

22.32 Nuclear Power Reactor Synthesis (Revised Content)

Prereq.: 22.211, 22.312

G (Spring)

3-0-9 H-LEVEL Grad Credit

Describes how physics, fuel management, and engineering disciplines are integrated to produce safe and economical power reactor designs. Emphasis given to application of basic tools to develop an understanding of how power reactors behave in steady-state, transient, and accident scenarios.

M. J. Driscoll, K. F. Hansen

22.33 Nuclear Engineering Design

(Subject meets with 22.033)

Prereq.: 22.212, 22.312

G (Spring)

2-9-4 H-LEVEL Grad Credit

Can be repeated for credit

Group design project involving integration of nuclear physics, reactor physics, control, heat transfer, safety, materials, power production, fuel-cycle management, environmental impact, and economic optimization. Provides student with opportunity to synthesize knowledge acquired in other subjects and apply this knowledge to practical problems of interest in the reactor design and radiation technology fields. Meets with undergraduate subject 22.033, but assignments differ.

N. E. Todreas

22.351 Current Nuclear Fuel Cycle Issues

Prereq.: 22.03 or equivalent

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Spring)

2-0-4 H-LEVEL Grad Credit

Current problems arising from the nuclear fuel cycle, including uranium enrichment, reprocessing of spent fuel, burning of light-water reactor spent fuel in heavy water reactors, and disposal of high-level waste by transmutation, are discussed. Aspects of the military fuel cycle cover disposal of military plutonium, remediation of contaminated facilities, issues related to nonproliferation of weapons technology, and methods of safe disposal of weapons plutonium. Meets for a two-hour lecture once a week with four hours of assigned reading and homework.

N. C. Rasmussen, M. J. Driscoll

22.38 Probability and its Applications To Reliability, Quality Control, and Risk Assessment

Prereq.: Permission of instructor
G (Spring)
3-0-9 H-LEVEL Grad Credit

Interpretations of the concept of probability. Basic probability rules; random variables and distribution functions; functions of random variables. Applications to quality control and the reliability assessment of mechanical/electrical components, as well as simple structures and redundant systems. Elements of statistics. Bayesian methods in engineering. Methods for reliability and risk assessment of complex systems, (event-tree and fault-tree analysis, common-cause failures, human reliability models). Uncertainty propagation in complex systems (Monte Carlo methods, Latin Hypercube Sampling). Introduction to Markov models. Examples and applications from nuclear and chemical-process plants, waste repositories, and mechanical systems. Open to qualified undergraduates.

G. Apostolakis

22.39 Nuclear Reactor Operations and Safety

Prereq.: 22.211
Acad Year 1996-97: Not offered
Acad Year 1997-98: G (Fall)
Units arranged H-LEVEL Grad Credit

Principles of operating nuclear reactor systems in a safe and effective manner. Emphasizes light-water reactor systems with transient response studies, including degraded core recognition and mitigation. Consequence analysis and risk assessment. Lessons from past accident experience. NRC licensing and regulations. Demonstrations: operation of the MIT research reactor; use of a PWR concept simulator. Optional laboratory section involves a project at the Nuclear Reactor Laboratory.

G. Apostolakis

Numerical and Mathematical Methods

22.45 Lattice Gas Algorithms and Architectures

Prereq.: Permission of instructor
Acad Year 1996-97: G (Spring)
Acad Year 1997-98: Not offered
2-0-7 H-LEVEL Grad Credit

Lattice gas algorithms are logical dynamical systems that can accurately and efficiently model a true continuum fluid. They provide fundamental computational advantages over floating point approximations to Navier-Stokes. The advantages stem from the dynamical similarity of the lattice gas system and a real molecular gas. Subject develops the algorithmic basis for the method, emphasizing the similarities and differences with a real molecular gas. Computer architectural issues also considered.

K. Molvig, G. M. Papadopoulos, T. F. Knight

Radiation Interactions and Applications

22.51 Interactions of Radiation with Matter

Prereq.: 8.05
G (Fall)
3-0-9 H-LEVEL Grad Credit

Basic principles of interaction of electromagnetic radiation, thermal neutrons, and charged particles with matter. Introduces classical electrodynamics, quantum theory of radiation, time-dependent perturbation theory, transition probabilities and cross sections describing interaction of various radiations with atomic systems. Applications include theory of nuclear magnetic resonance; Rayleigh, Raman, and Compton scattering; photoelectric effect; and use of thermal neutron scattering as a tool in condensed matter research.

S. H. Chen

22.52J Statistical Thermodynamics of Complex Liquids

(Same subject as 8.575J, 10.44J)
Prereq.: 8.08, 10.213, or equivalent
Acad Year 1996-97: Not offered
Acad Year 1997-98: G (Spring)
3-0-9 H-LEVEL Grad Credit

Theory of self-assembly in surfactant-water (micellar) and surfactant-water-oil (micro-emulsion) systems. Introduction to the theory of polymer solutions. Introduction to scattering techniques — light, x-ray, and neutron scattering — applied to studies of the structure and dynamics of complex liquids. Modern theory of the liquid state relevant to structured (supramolecular) liquids.

S. H. Chen, D. Blankschtein

22.53 Statistical Processes and Atomistic Simulations

Prereq.: —
Acad Year 1996-97: G (Fall)
Acad Year 1997-98: Not offered
3-0-9 H-LEVEL Grad Credit

Statistical mechanics principles of equilibrium and time-dependent properties of condensed states of matter. Phase-space distributions, time correlations functions, kinetic equations. Free energy calculations. Stochastic processes. Continuum and molecular models for transport phenomena and phase transitions. Methods and applications of molecular dynamics and Monte Carlo simulations in statistical physics and materials science.

S. Yip

22.54 Nuclear and Atomic Collision Phenomena

(22.113)
Prereq.: 22.101
Acad Year 1996-97: Not offered
Acad Year 1997-98: G (Spring)
3-0-9 H-LEVEL Grad Credit

Principles and applications of classical and quantum theory of collisions. Detailed study of two-body scattering, partial-wave and phase-shift analysis, time-dependent perturbation theory, and the Born approximation. Irradiation atomistics. Optical model of nuclear reactions. Atomic stopping power. Thermal neutron inelastic scattering in condensed matter. Connections between diffraction and imaging.

S. Yip, X. L. Zhou

22.55J Principles of Radiation Applications

(Same subject as HST.560J)
Prereq.: Permission of instructor
G (Spring)
4-0-8 H-LEVEL Grad Credit

Principles of advanced radiation source engineering, theory and computation methods of radiation transport in bulk matter, and major radiation applications in industry, medicine, and scientific studies. Topics include radiation processing, nuclear measurements, nuclear interrogation, radiation therapies, radiation medical diagnostics, nuclear analytical techniques, and neutron scattering and NMR spectrometers. Requires a term paper and presentation.

X. L. Zhou

22.56J Principles of Medical Imaging

(Same subject as 2.761J, HST.561J)
Prereq.: Permission of instructor
G (Spring)
4-0-8 H-LEVEL Grad Credit

Principles of imaging methods using ionizing and non-ionizing radiation and ultrasound. Emphasis placed on fundamental physics and mathematics involved in image formation, including basic interactions, data acquisition and reconstruction. Planar radiographic imaging, multi-dimensional tomography (X-ray CAT, PET, SPECT), ultrasound, and NMR imaging covered, with examples of specific medical applications.

D. Cory, D. Rowell

22.561J Magnetic Resonance — Analytic, Biochemical, and Imaging Techniques

(Same subject as HST.584J)
Prereq.: Permission of instructor
G (Spring)
3-0-12 H-LEVEL Grad Credit

See description under subject HST.584J.
B. R. Rosen

22.562J Spatial Aspects of Nuclear Magnetic Resonance Spectroscopy

(Same subject as HST.562J)

Prereq.: 22.56J or permission of instructor

G (Fall)

3-0-9 H-LEVEL Grad Credit

Discusses the theory and application of nuclear magnetic resonance spectroscopy to questions of the spatial distribution of spins. Covers NMR imaging, localized spectroscopy, and local geometries as determined by diffusive processes. The theory is discussed in terms of the density operator and reciprocal space (for both imaging and motional studies). Describes applications to rapid imaging, dynamic imaging, microscopy, and localized spectroscopy. Instrumentation and experimental constraints are also described.

D. G. Cory

22.57J Radiation Biophysics

(Same subject as HST.568J)

Prereq.: 22.101

G (Fall)

4-0-8 H-LEVEL Grad Credit

Discusses ionizing radiation, ultraviolet radiation, and heat and their effects on biological materials, cells, and tissues. Examines *in vivo* and *in vitro* mammalian systems, and explores mathematical models for cell survival, emphasizing prediction. Covers radiation therapy, radiation syndromes in humans, and carcinogenesis. Environmental radiation sources also discussed.

J. C. Yanch

22.571J General Thermodynamics

(Same subject as 2.451J)

Prereq.: Permission of instructor

G (Fall)

3-0-9 H-LEVEL Grad Credit

See description under subject 2.451J.

J. L. Smith

22.58 Seminar in Radiation Health Physics

Prereq.: —

G (Fall)

2-0-1 [P/D/F]

Introduces many of the pertinent areas of research and concern in the field of Radiation Health Physics. Topics of weekly seminars include radiation shielding, waste management, environmental behaviour of radioactivity, medical irradiations, methods of detection and dosimetry, dose reduction, and the regulatory and legal aspects of radiation; student presentations also required.

J. C. Yanch

22.581 Radiation Health Physics (Revised Units)

Prereq.: —

G (Spring)

3-0-9

Covers topics in internal and external radiation dosimetry and protection, including radiation quantities and units, legal guidelines and regulations, derivations of external dosimetry calculations, source and facility shielding, pathways and bioassays, contamination control, and current areas of research activity. Environmental radiation exposure, radiation distribution, and transport dynamics are also covered. Waste management (categories of sources, waste characteristics) and disposal (packing technology, sites, laws, and regulations) are examined.

G. Solares

22.59 Principles of Nuclear Radiation Measurement and Protection

Prereq.: 22.101

Acad Year 1996-97: G (Fall)

Acad Year 1997-98: Not offered

2-6-4 H-LEVEL Grad Credit

Combines lectures, demonstrations, and experiments. Covers effects of radiation on persons; control of radiation exposure within applicable standards; theory and use of α , β , γ , and n detectors and spectrometers; use of isotopes, radiation shielding, and dosimetry. Includes demonstrations and experiments using the MIT research reactor, accelerators, and power reactors.

L. M. Lidsky, K. Wenzel

Plasmas and Controlled Fusion**22.601 Fusion Energy I**

(Subject meets with 22.061)

Prereq.: Permission of instructor

G (Fall)

3-0-9 H-LEVEL Grad Credit

Basic nuclear physics and plasma physics for controlled fusion. Nuclear physics: fusion cross sections, ignition condition, break-even condition, Lawson criterion, elementary fusion reactor, required plasma parameters. Plasma physics: definition of a plasma, single-particle orbits, Coulomb collisions, fluid model, magnetic fusion configurations, MHD equilibrium and stability, transport and heating. Meets three lecture hours a week with undergraduate subject 22.061, but with different assignments and exams.

J. P. Freidberg

22.602 Fusion Energy II

Prereq.: 22.601 or 22.611J

G (Spring)

3-0-9 H-LEVEL Grad Credit

Principles of magnetic plasma confinement. Basic plasma heating schemes including ohmic heating, neutral beams, and RF. Discussion of Landau damping and cyclotron damping and their application to plasma heating. Experimental description of current confinement devices including tokamaks, RFPs, and stellarators. Discussion of experimental operation and design including toroidal magnet design and poloidal field system design.

I. H. Hutchinson

22.611J Introduction to Plasma Physics I

(Same subject as 8.613J, 6.651J)

Prereq.: 6.014 or 8.07; 18.04 or 18.075

G (Fall)

3-0-9 H-LEVEL Grad Credit

See description under subject 8.613J.

A. Bers, B. Coppi

22.612J Introduction to Plasma Physics II

(Same subject as 8.614J, 6.652J)

Prereq.: 6.651J or 8.613J or 22.611J

G (Spring)

3-0-9 H-LEVEL Grad Credit

See description under subject 8.614J.

P. Catto

22.615 MHD Theory of Fusion Systems

Prereq.: 22.601 or 22.611J or 6.651J or 8.613J

Acad Year 1996-97: G (Spring)

Acad Year 1997-98: Not offered

3-0-9 H-LEVEL Grad Credit

Derivation of the basic MHD model from the Boltzmann equation. Discussion of MHD equilibria in cylindrical, toroidal, and noncircular tokamaks. Use of MHD equilibrium theory in poloidal field design. MHD stability theory including the Energy Principle, interchange instability, ballooning modes, second region of stability, and external kink modes. Emphasis on discovering configurations capable of achieving good confinement at high beta.

J. P. Freidberg

22.616 Plasma Transport Theory

Prereq.: 22.615

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Fall)

3-0-9 H-LEVEL Grad Credit

Description of the processes by which mass, momentum, and energy are transported in plasmas, with special reference to magnetic confinement fusion applications. Classical collisional transport based on the Boltzmann and Fokker-Planck equations in cylindrical plasmas. Scaling and empirical laws. Application to tokamaks, especially the divertor problem. Heat load requirements, divertor detachment, marbles, recycling, and impurity control.

J. P. Freidberg, I. H. Hutchinson

22.63 Engineering Principles for Fusion Reactors

Prereq.: Permission of instructor
 Acad Year 1996-97: **Not offered**
 Acad Year 1997-98: G (Spring)
 3-0-9 H-LEVEL Grad Credit

Fusion reactor design considerations: ignition devices, engineering test facilities, and safety/environmental concerns. Magnet principles: resistive and superconducting magnets; cryogenic features. Blanket and first wall design; liquid and solid breeders, heat removal, and structural considerations. Heating devices: radio frequency and neutral beam.
R. Ballinger

22.64 Plasma Kinetic Theory

Prereq.: 8.613J
 Acad Year 1996-97: **Not offered**
 Acad Year 1997-98: G (Spring)
 3-0-9 H-LEVEL Grad Credit

Basic physics of the wave-particle interaction with emphasis on intuitive concepts. Linearized Vlasov equation, quasilinear theory, Fokker-Planck and diffusion approximations for the average distribution function, resonant and nonresonant diffusion, energy and momentum conservation, free energy, application of quasilinear theory to various physical problems of current interest.
K. Molvig

22.67 Principles of Plasma Diagnostics

Prereq.: 6.651J or 8.613J or 22.611J
 Acad Year 1996-97: G (Fall)
 Acad Year 1997-98: **Not offered**
 3-0-9 H-LEVEL Grad Credit

Introduction to the physical processes used to measure the properties of plasmas, especially fusion plasmas. Measurements of magnetic and electric fields, particle flux, refractive index, emission and scattering of electromagnetic waves and heavy particles; their use to deduce plasma parameters such as particle density, pressure, temperature, velocity, etc., and hence the plasma confinement properties. Discussion of practical examples and assessments of the accuracy and reliability of different techniques.
I. H. Hutchinson

22.69 Plasma Laboratory

(Subject meets with 22.069)
 Prereq.: 22.611J or 6.651J or 8.613J or 22.601
 G (Spring)
 1-4-7 H-LEVEL Grad Credit

Basic engineering and scientific principles associated with experimental plasma physics. Investigates vacuum pumping phenomena and gauge operation, normal and superconducting magnetic field coils, microwave interactions with plasmas, laboratory plasma production including electrical breakdown phenomena, Langmuir probe characteristics and spectroscopy.
K. W. Wenzel

Nuclear Materials**22.70J Materials for Nuclear Applications**

(Subject meets with 3.070J, 3.711J, 22.070J)
 Prereq.: Permission of instructor
 G (Spring)
 3-0-9 H-LEVEL Grad Credit

Introductory subject for students who are not specializing in nuclear materials. Applications and selection of materials for use in nuclear applications. Radiation damage, radiation effects, and their effects on performance of materials in fission and fusion environments. Meets with undergraduate subject 22.070J, but assignments differ.
K. C. Russell

22.71J Physical Metallurgy

(Same subject as 3.40J)
 Prereq.: 3.14 or 3.711J
 G (Fall)
 3-0-9 H-LEVEL Grad Credit

See description under subject 3.40J.
R. W. Balluffi

22.72J Corrosion: The Environmental Degradation of Materials

(Same subject as 3.54J)
 Prereq.: 3.00
 G (Fall)
 3-0-6 H-LEVEL Grad Credit

See description under subject 3.54J.
R. G. Ballinger

22.76 Nuclear Chemical Engineering

Prereq.: Permission of instructor
 Acad Year 1996-97: G (Spring)
 Acad Year 1997-98: **Not offered**
 3-0-9 H-LEVEL Grad Credit

Application of chemical engineering to nuclear fission and fusion reactors. Principles of chemical and physical separation processes. Technologies for the production of nuclear fuel, moderator, and structural materials. Management of radioactive wastes and spent fuel, including chemical processing and disposal. Fuel cycle economics, safety, and nuclear safeguards. Chemical aspects of operation of fission and fusion reactors. Chemistry of fission products and actinides.
 Information: M. S. Kazimi.

22.77 Nuclear Waste Management

Prereq.: Permission of instructor
 G (Fall)
 3-0-9 H-LEVEL Grad Credit

Introduces scientific and engineering aspects of the management of spent fuel, reprocessed high-level waste, uranium mill tailings, low-level wastes, and decommissioning wastes. Fundamental processes and governing equations of radiation and radionuclide transport. Design principles and evaluation methods for geologic waste disposal systems. Interim storage, processing, and transportation technologies. Review of nuclear waste management regulation. Open to qualified undergraduates.
G. Apostolakis

22.78 Nuclear Techniques in Environmental Analysis

(Subject meets with 22.078)
 Prereq.: Permission of instructor
 Acad Year 1996-97: **Not offered**
 Acad Year 1997-98: G (Spring)
 2-6-4 H-LEVEL Grad Credit

Presents a general review of nuclear chemistry with detailed explanation of instrumental and radiochemical neutron activation analysis. Other nuclear analytical techniques such as prompt gamma activation analysis, instrumental photon activation analysis, and isotope dilution are also addressed. Application of trace element analysis techniques to air and water pollution studies and other technical issues are presented.
I. Olmez

Systems, Policy, and Economics**22.811 Energy, Electricity, and the Environment**

Prereq.: Permission of instructor
 G (Spring)
 3-0-9 H-LEVEL Grad Credit

Means of satisfying energy needs and their environmental implications, including global warming for both industrialized and developing countries — considering alternative technologies, conservation, the associated environmental effects, and their mitigation. Environmental effects differ from global to local scales and from different points within the fuel cycles of the different technologies. Technologies considered include those for conservation, fossil, nuclear, solar, and geothermal fuels.
M. W. Golay

22.812 Nuclear Energy Economics and Policy Analysis

Prereq.: Permission of instructor
 G (Fall)
 3-0-9 H-LEVEL Grad Credit

An examination of current economic and policy issues in the electric power industry, focusing on nuclear power and its fuel cycle. Introduces techniques for analyzing private and public policy alternatives, including discounted cash flow methods and other techniques in engineering economics. Application to specific problem areas, including nuclear waste management and weapons proliferation. Other topics include deregulation and restructuring in the electric power industry.
R. K. Lester

22.82 Engineering Risk-Benefit Analysis

Prereq.: 18.02
 G (Spring)
 3-0-6 H-LEVEL Grad Credit

Engineering School-Wide Elective Subject. Description given at end of this chapter in SWE section on page 562.
G. Apostolakis, A. W. Drake, A. R. Odoni

22.821 Engineering Systems Analysis

Prereq.: Permission of instructor

G (Fall)

3-0-6 H-LEVEL Grad Credit

Engineering School-Wide Elective Subject.

Description given at end of this chapter in SWE section on page 562.

*R. de Neufville, J. P. Clark, F. Field***22.822J Strategic Analysis for Environmental Policy Planning, Design, and Implementation**

(Same subject as 1.141J, 3.563J, 6.688J, 11.385J, TPP.121J)

Prereq.: 1.146 or 2.192 or 3.56 or 13.62 or 16.861 or TPP.21 or 11.200 or 11.205

G (Spring)

3-0-6 H-LEVEL Grad Credit

See description under subject 1.141J.

*D. H. Marks, R. de Neufville, J. Clark, R. Gakenheimer, M. W. Golay, D. Sadoway, R. D. Tabors***22.823 Nuclear Industry Dynamics**

Prereq.: 22.211

G (Spring)

3-0-9 H-LEVEL Grad Credit

Introduction to techniques for modeling and understanding the interaction of nuclear plant operations with the external world of safety and economic regulation, public concern, and financial issues. The system dynamics technique is introduced by application to nuclear plant construction and then focuses on modeling the interrelations between plant management and operations, the regulatory environment, the financial environment, and the public sector.

*K. F. Hansen***22.843J Technology, Productivity, and Industrial Competition**

(Same subject as 17.172J)

Prereq.: Permission of instructor

G (Spring)

3-0-9 H-LEVEL Grad Credit

An analysis of the relationships between technological innovation, productivity growth, and industrial competitiveness. Examines alternative models of industrial performance at the enterprise, industry, and national levels. Several industry case studies. Surveys recent developments in industrial policies in the US and other advanced industrialized nations.

*R. K. Lester***22.86 Entrepreneurship**

Prereq.: —

G (Spring)

4-0-5

Engineering School-Wide Elective Subject.

Description given at end of this chapter in SWE section on page 562.

*T. G. Gutowski***General****22.901–22.904 Special Problems in Nuclear Engineering**

Prereq.: Permission of instructor

G (Fall, Spring, Summer)

Units arranged H-LEVEL Grad Credit

Can be repeated for credit

For graduate and advanced undergraduate students who wish to conduct a one-term project of a theoretical or experimental nature in the nuclear engineering field, in close cooperation with individual staff members. Arrangement of topic and hours to fit students' requirements.

*J. Freidberg***22.905 Special Topics in Nuclear Engineering**

Prereq.: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F] H-LEVEL Grad Credit

Can be repeated for credit

Special topics for graduate and advanced undergraduate students.

*J. Freidberg***22.911 Seminar in Nuclear Engineering**

Prereq.: —

G (Fall)

2-0-1 [P/D/F]

Can be repeated for credit

22.912 Seminar in Nuclear Engineering

Prereq.: —

G (Spring)

2-0-1 [P/D/F]

Can be repeated for credit

Restricted to graduate students engaged in doctoral thesis research.

*J. E. Meyer***22.92 Advanced Engineering Internship**

Prereq.: 22.092

G (Fall, Spring, Summer)

0-6-0 [P/D/F]

Can be repeated for credit

Provides credit for the third and fourth Work Assignments for students affiliated with the Engineering Internship Program. Students register for this subject twice. Students must complete both Work Assignments to receive the academic credit for this subject. Enrollment limited to students in the Engineering Internship Program.

*J. E. Meyer***22.920 A Hands-On Introduction to Nuclear Magnetic Resonance (New)**

Prereq.: Permission of instructor

G (IAP)

1-2-0 H-LEVEL Grad Credit

Hands-on introduction to NMR presenting background in classical theory and instrumentation. Each lecture followed by lab experiments both to demonstrate ideas presented during the lecture and to familiarize students with state-of-the-art NMR instrumentation. Experiments cover topics ranging from spin dynamics to spectroscopy, and include imaging.

*D. G. Cory***22.921 Nuclear Power Plant Dynamics and Control**

Prereq.: Graduate Level

G (IAP)

1-0-2

Nuclear power plant dynamics involve unique non-linear systems due to delayed neutron effects and to thermally induced feedback effects. Engineers need to understand these; the rapid development of digital systems with control applications affords ideal methods for solving the non-linear control problems with systems that are insensitive to human error. Subject includes lectures and demonstrations with computer simulation and the use of the MIT Research Reactor.

*J. A. Bernard***22.925 Neutron and X-Ray Reflectometry and Small Angle Scattering (New)**

Prereq.: 8.03 or 18.03

G (IAP)

2-0-2 H-LEVEL Grad Credit

Neutron and x-ray reflectometry are ideal for investigating the angstrom-level structure of material thin films, surfaces, and interfaces which are found widely in physics, chemistry, materials science, and engineering studies. Covers fundamental aspects of reflectometry, including direct theories, data inversion methods, reflectometer instrumentation, and applications. Includes an introduction to theory and applications of small angle scattering since they bear strong similarity to reflectometry.

X.-L. Zhou, S.-H. Chen

22.926 Environmental Applications of**Plasma****(New)**

Prereq.: 8.03

G (IAP)

1-0-3

Introduces the concepts of plasma technology applied to remediation and monitoring of environmental problems. As most environmental applications involve the use of atmospheric pressure plasmas, the fundamental concepts of weakly ionized plasmas are covered. Plasma chemistry and plasma sources are described. Thermal and non-thermal plasmas and their applications for treating a variety of hazardous materials are illustrated with a description of several industrial examples.

*K. W. Wenzel, E. A. Chaniotakis***22.928J Energy in Perspective**

(Same subject as TPP.64J)

Prereq.: Permission of instructor

G (IAP)

2-0-4 H-LEVEL Grad Credit

An overview of energy production, delivery, transformation, and end-use in their technological, economic, environmental, and sociopolitical dimensions. Special emphasis on the following topics: greenhouse gas warming; potential for more efficient use of energy; renewable resources: how much and how renewable; the fear of radiation, nuclear proliferation, and the future of nuclear fission power; technologies of the future, e.g., nuclear fusion and the hydrogen economy.

*M. Miller, M. J. Driscoll***22.93 Teaching Experience in Nuclear Engineering**

Prereq.: Permission of department

G (Fall, Spring, Summer)

Units arranged H-LEVEL Grad Credit

For qualified graduate students interested in teaching as a career. Classroom, laboratory, or tutorial teaching under the supervision of a faculty member. Students selected by interview. Enrollment limited by the availability of suitable assignments. Credits for this subject may not be used toward Master's or Engineer's degrees.

*M. S. Kazimi***22.ThG Graduate Thesis**

Prereq.: —

G (Fall, Spring, Summer)

Units arranged H-LEVEL Grad Credit

Can be repeated for credit

Program of graduate research, leading to the writing of an S.M., M.Eng., N.E., Ph.D., or Sc.D. thesis; to be arranged by the student and an appropriate MIT faculty member. Consult Department Graduate Office

*J. P. Freidberg***Nuclear Metallurgy****22.700 Nuclear Metallurgy****Applications****Prereq.: None****Units arranged****H-LEVEL Grad Credit****1-0-3</b**

Course 24

Linguistics and Philosophy

For degree requirements, see listing in Chapter VII under the School of Humanities and Social Science.

Philosophy

24.UR Undergraduate Research

Prereq.: —
U (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Undergraduate research opportunities in Linguistics and Philosophy. For further information, consult the Departmental coordinators. Linguistics: W. O'Neil.
Philosophy: J. Thomson.

24.00 Problems of Philosophy

Prereq.: —
U (Fall, Spring)
3-0-9 HASS-D, Category 2

Introduction to the problems of philosophy, in particular, to problems in ethics; metaphysics; theory of knowledge; and philosophy of logic, language, and science. A systematic rather than historical approach. Readings from classical and contemporary sources, but emphasis is on examination and evaluation of proposed solutions to the problems.
J. Thomson, V. McGee

24.01 Philosophy and Public Affairs

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall, Spring)
3-0-9 HASS

Issues such as abortion, punishment, and pornography are emotionally laden and practically urgent. It is easy to have opinions on such matters, but difficult to think them through. Learning to think clearly and systematically about concrete issues is the point of this subject. Focus is on the critical examination of the arguments presented by the authors read, but broad aim is for student to develop the capacity for self-reflection about concrete moral issues.

Staff

Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Fall)

3-0-9 HASS

Examination of fundamental issues in philosophy of law, such as the nature and limits of law and a legal system, and the relation of law to morality, with particular emphasis on the philosophical issues and problems associated with justice, equity, justice, punishment, and responsibility. Historical and contemporary readings, including case law. Permission of instructor required for students without the above prerequisites.
A. Cohen

24.02 What is the Best Way to Live? (New)

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 2

What is the best way to live? How important is moral integrity, or personal happiness, or individual autonomy and self-expression, if one is to live in the best way that one can? Examines classics texts from the history of Western philosophy, and some literary, non-philosophical texts, bearing on these questions. These texts include works by Sophocles, Thucydides, Plato, Kant, Schiller, J. S. Mill, Marx, Nietzsche, and Dickens. Emphasis on close analysis and evaluation of philosophical ideas and arguments.
R. Wedgwood

24.03 Relativism, Reason, and Reality

Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 2

An examination of philosophical issues on the theme of relativism. Are moral standards relative to cultures and/or moral frameworks? Are there incompatible or non-comparable ways of thinking about the world that are somehow equally good? Can any sense be made of the idea that truth is relative? Is rationality — the notion of a good reason to believe something — relative to cultural norms? Is the idea of a completely objective description of the world incoherent? Discussion of these questions through the writings of contemporary philosophers such as Thomas Kuhn, Nelson Goodman, Bernard Williams, and Hilary Putnam. Emphasis on ways of making these vague questions precise, and critical evaluation of philosophical arguments.
A. Byrne

24.04J Justice

(Same subject as 17.115J)
Prereq.: —
U (Spring)
3-0-9 HASS-D, Category 2

An examination of alternative theories of justice — utilitarianism, rights theories, social contract theory, and communitarianism — and the implications of those theories for problems of liberty, equality, and community. Readings drawn principally from the work of contemporary political philosophers, including Rawls, Nozick, Dworkin, Walzer, MacIntyre, and Buchanan.
A. MacIntyre

24.05 Philosophy of Science

Prereq.: —
U (Fall)
3-0-9 HASS-D, Category 2

An introduction to fundamental philosophical problems concerning the nature of science and its development. How, for example, is scientific knowledge arrived at; in what circumstances are theories rejected and replaced; what criteria or values govern these processes; and do they vary from one science to another? Are observed facts given once and for all, independent of theory, or does change of theory change what is to be a datum? Do scientific theories describe an underlying reality, or do they merely provide an economical systematization of experimental results?
E. Hall

24.07 Classics in the History of Philosophy

Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
3-0-9 HASS

Introduction to philosophy through its history. Readings in the works of such philosophers as Plato, Aristotle, Aquinas, Descartes, Hume, and Kant. Emphasis on becoming closely acquainted with important historical texts and examining fundamental philosophical issues as they appear in works that have been especially influential in the development of Western philosophy.

Staff

24.09J Classics in Political Philosophy

(Same subject as 17.113J)
Prereq.: —
Acad Year 1996-97: Not offered
Acad Year 1997-98: U (Spring)
3-0-9 HASS

An introduction to theories of social justice through a study of classical works in the history of political philosophy, including Plato's *Republic*, Hobbes's *Leviathan*, Locke's *Second Treatise*, Rousseau's *Social Contract*, and Marx's *German Ideology*. Focus on such questions of political order as: Why (if at all) should there be a state? What are the limits of legitimate political authority? Should the state seek to advance a particular view of the good life?

Staff

24.111 Philosophy of Quantum Mechanics

Prereq.: —

U (Spring)

3-0-9 HASS

Quantum mechanics is said to describe a world in which physical objects often lack "definite" properties; indeterminism creeps in at the point of "observation," ordinary logic does not apply, and distant events are perfectly yet inexplicably correlated. Examination of these and other issues central to the philosophical foundations of quantum mechanics, with special attention to the measurement problem, no-hidden-variables proofs, and Bell's inequalities. Rigorous approach to the subject matter nevertheless neither presupposes nor requires the development of detailed technical knowledge of the quantum theory.

E. Hall

24.113 Classical Film Theory: Problems in Aesthetics

(Revised Content)

Prereq.: —

U (Fall)

3-0-9 HASS

Philosophical analysis of film art, with an emphasis on the ways in which it creates meaning through techniques that define a formal structure. Particular focus on aesthetic problems about appearance and reality, literary and visual effects, communication and alienation through film technology. In Fall 1996-97, meets with undergraduate subject 21L.706 and graduate subject 21L.906.

I. Singer

24.118 Paradox and Infinity

Prereq.: —

U (Spring)

3-0-9 HASS

Different kinds of infinity; the paradoxes of set theory; the reduction of arithmetic to logic; formal systems; paradoxes involving the concept of truth; Gödel's incompleteness theorems; the nonformalizable nature of mathematical truth; Turing machines.

M. Glanzberg

24.119 Minds and Machines

Prereq.: —

U (Spring)

3-0-9 HASS

Examination of problems in the intersection of artificial intelligence, psychology, and philosophy. Issues discussed: whether people are Turing Machines, whether computers can be conscious, limitations on what computers can do, computation and neurophysiology, the Turing test, the analog/digital distinction, the Chinese Room argument, the causal efficacy of content, the inverted spectrum, mental representation, procedural semantics, connectionism, the relation between simulation and explanation, whether some aspects of mentality are more resistant to programming than others.

A. Byrne

24.151 Introduction to Philosophy of Language

Prereq.: —

U (Fall)

3-0-9 HASS

Examination of views on the nature of meaning, reference, truth, and their relationships. Other topics may include relationships between language and logic, language and knowledge, language and reality, language and acts performed through its use. No knowledge of logic or linguistics presupposed.

J. Higginbotham

24.171 Introduction to Phenomenology

Prereq.: —

Acad Year 1996-97: U (Fall)

Acad Year 1997-98: Not offered

3-0-6 HASS

The philosophy of Edmund Husserl. Readings from *Logical Investigations*, *Ideas I*, *Cartesian Meditations*, *The Idea of Phenomenology*. Discussion on the concepts of intentionality, founding, phenomenological reduction. Survey of the development of phenomenology since Husserl.

G.-C. Rota

24.200 Ancient Philosophy

Prereq.: One Philosophy subject

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

Study of Socrates, Plato, and Aristotle with some attention to pre-Socratic philosophy (e.g., Parmenides and Heraclitus), and Hellenistic philosophy (e.g., Cynicism and Stoicism). Examination of their views on ethics, politics, metaphysics, and the nature of knowledge, with special attention to how these various thinkers formed part of a single tradition of philosophical thought.

R. Wedgwood

24.202 Modern Philosophy: Descartes to Kant

Prereq.: One Philosophy subject

U (Spring)

3-0-9 HASS

Philosophic thought in Europe during the seventeenth and eighteenth centuries. Emphasis on epistemology and metaphysics. Includes Descartes, Spinoza, Berkeley, Hume, and Kant.

E. Hall

24.205 The Good Life

Prereq.: One Philosophy subject

U (Spring)

3-0-9 HASS

Technical problems in modern philosophy dealing with the nature of happiness, self-fulfillment, meaning in life, the making of ideals, and the pursuit of spiritual goals. Papers based on the works of Schopenhauer, Santayana, Sartre, Freud, and others.

I. Singer

24.208 Kant

(Subject meets with 24.408)

Prereq.: 24.202

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

A thorough study of Kant's *Critique of Pure Reason*. Special topics to be considered include Kant's notion of objectivity and objecthood; the unity of apperception; the criticism of metaphysics; the role of reason in scientific investigation. Meets with graduate subject 24.408, but assignments differ.

Staff

24.209J Studies in Film and Media: Philosophical Themes

(Revised Content)

Prereq.: One subject in Literature or Philosophy

U (Spring)

3-0-9 HASS

Works of film examined in relation to thematic issues of philosophical importance that also occur in other arts, particularly literature and opera. Emphasis on film's ability to represent and express feeling as well as cognition. In Spring of 1996-97, meets with undergraduate subject 21L.706 and graduate subject 21L.906.

I. Singer

24.210 Problems in the Philosophy of Love

Prereq.: One Philosophy subject

U (Fall)

3-0-9 HASS

Philosophical issues in the study of human bonding: e.g., types of valuation, the development of ego ideals, and the relationships between love, desire, emotion, and reason. Readings in recent philosophy and the history of philosophy.

I. Singer

24.211 Theory of Knowledge

Prereq.: One Philosophy subject

U (Fall)

3-0-9 HASS

Study of problems concerning our concept of knowledge, our knowledge of the past, our knowledge of the thoughts and feelings of ourselves and others, and our knowledge of the existence and properties of physical objects in our immediate environment.

R. Stalnaker

24.212 Varieties of Skepticism

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Spring)

3-0-9 HASS

Can we know anything at all, and if so, how do we do it? How much of what we ordinarily take to be our knowledge really deserves the name? Exploration of these central epistemological issues via examination of a range of philosophically significant skeptical arguments, focusing on arguments due to Descartes, Hume, Goodman, and Kripke/Wittgenstein. Emphasis on the role of underdetermination of theory by data in motivating skeptical positions, philosophical themes which unify these positions, importance of skepticism in guiding philosophical inquiry.

*E. Hall***24.221 Metaphysics**

Prereq.: One Philosophy subject

U (Spring)

3-0-9 HASS

Study of basic metaphysical issues concerning existence, the mind-body problem, personal identity, causation and its implications for freedom. Classical as well as contemporary readings.

*J. Thomson***24.231 Ethics**

Prereq.: One Philosophy subject

U (Fall)

3-0-9 HASS

Systematic study of central theories in ethics, including egoism, act and rule utilitarianism, intuitionism, emotivism, rights theories, and contractualism. Discussion and readings also focus on problems associated with moral conflicts, justice, the relationship between rightness and goodness, objective vs subjective moral judgments, moral truth and relativism.

*R. Wedgwood***24.233J Political Philosophy**

(Same subject as 17.105J)

Prereq.: One Philosophy subject

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

See description under subject 17.105J.

*J. Cohen***24.235J Philosophy of Law**

(Same subject as 17.109J)

Prereq.: One Philosophy subject

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

Examination of fundamental issues in philosophy of law, such as the nature and limits of law and a legal system, and the relation of law to morality, with particular emphasis on the philosophical issues and problems associated with privacy, liberty, justice, punishment, and responsibility. Historical and contemporary readings, including court cases. Permission of instructor required for students without the above prerequisite.

*J. Cohen***24.241 Logic I**

Prereq.: —

U (Fall)

3-0-9 HASS

Introduction to the aims and techniques of formal logic. The logic of truth functions and quantifiers. The concepts of validity and truth and their relation to formal deduction. Applications of logic and the place of logic in philosophy.

*M. Glanzberg***24.242 Logic II**

Prereq.: 24.241

U (Spring)

3-0-9 HASS

The central results of modern logic: the completeness of predicate logic, recursive functions, the incompleteness of arithmetic, the unprovability of consistency, the indefinability of truth, Skolem-Löwenheim theorems, non-standard models. Permission of instructor required for students without the above prerequisite.

*M. Glanzberg***24.243 Classical Set Theory**

Prereq.: 24.241 or the equivalent

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

Introduction to the basic concepts and results of standard, i.e., Zermelo-Fraenkel, set theory: the axioms of ZF, ordinal and cardinal arithmetic, the structure of the set-theoretic universe, the axiom of choice, the (generalized) continuum hypothesis, inaccessibles and beyond.

*G. S. Boolos***24.244 Modal Logic**

Prereq.: 24.241

U (Fall)

3-0-9 HASS

Sentential and quantified modal logic, with emphasis on the model theory ("possible worlds semantics"). Soundness, completeness, and characterization results for alternative systems. Tense and dynamic logics, epistemic logics, as well as logics of necessity and possibility. Applications in philosophy, theoretical computer science, and linguistics.

*V. McGee***24.260 Topics in Philosophy**

Prereq.: Two subjects in Philosophy

U (Spring)

3-0-9 HASS

Close examination of a single book, or group of related essays, of major significance in recent philosophy. Subject matter varies from year to year. Intended primarily for majors and minors in philosophy.

*R. Wedgwood***24.280 Foundations of Probability**

Prereq.: One philosophy subject or one subject on probability

Acad Year 1996-97: Not offered

Acad Year 1997-98: U (Fall)

3-0-9 HASS

Topics include: probability puzzles; common fallacies in probabilistic reasoning; defenses and criticisms of Kolmogorov's axiomatization; interpretations of probability (including the frequency, logical, propensity, and various subjectivist interpretations); the relation of objective chance to rational subjective credence; conditional probability; rules for updating probability; proposals for supplementing the probability calculus with further principles.

*Staff***24.292 Special Topics in Philosophy**

Prereq.: Any two subjects in Philosophy

U (Fall)

Units arranged

Open to qualified students who wish to pursue special studies or projects. Students electing this subject must consult the Department Head.

24.293 Special Topics in Philosophy

Prereq.: Any two subjects in Philosophy

U (Spring)

Units arranged

Open to qualified students who wish to pursue special studies or projects. Students electing this subject must consult the Department Head.

24.400 Proseminar in Philosophy I

Prereq.: Permission of instructor

G (Fall)

6-0-18 H-LEVEL Grad Credit

24.401 Proseminar in Philosophy II

Prereq.: Permission of instructor

G (Spring)

6-0-18 H-LEVEL Grad Credit

Advanced study of the basic problems of philosophy. Intended for first-year graduate students in philosophy.

*24.400: A. Byrne**24.401: R. Stalnaker, J. Thomson***24.408 Kant**

(Subject meets with 24.208)

Prereq.: —

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Fall)

3-0-9

Meets with undergraduate subject 24.208, but assignments differ. See description under subject 24.208.

Staff

24.410–24.419 Topics in the History of Philosophy

Prereq.: Permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Fall)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Intensive study of a philosopher or philosophical movement. Content varies from year to year, and subject may be taken repeatedly with permission of instructor and advisor.

Staff

24.500 Consciousness

Prereq.: Permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Fall)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

What consciousness is; what it is for; why it is so hard to study scientifically; whether it is unified; its relation to the self. Blind-sight and other "defects" of consciousness; relation to attention; temporal phenomena.

Epiphenomenalism, eliminativism, zombies, the inverted spectrum hypothesis, anesthetics, unconscious pain. Relation to mind-body identity and functionalist theses. Meets with Wellesley Philosophy 345, taught jointly at MIT with Owen Flanagan.

Staff

24.501 Problems In Metaphysics

Prereq.: Permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Spring)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Systematic examination of selected problems in metaphysics. Content varies from year to year and subject may be taken repeatedly with permission of instructor and advisor. Topic for this year: metaphysical issues concerning necessity and possibility.

A. Byrne, E. Hall

24.518J Problems of Mental Representation

(Same subject as 9.671J)

Prereq.: Two Philosophy subjects and permission of instructor

G (Spring)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Selected philosophical problems about representational mental states. The nature of intentional content: narrow vs wide content, conceptual vs nonconceptual content; skepticism about the content of one's own thoughts, the relation between the intentionality of language and the intentionality of thought, representational theories of phenomenal consciousness. Specific topics may vary from year to year.

R. Stalnaker

24.601 Topics in Moral Philosophy

Prereq.: Permission of instructor

G (Spring)

3-0-9 H-LEVEL Grad Credit

Systematic examination of selected problems in moral philosophy. Content varies from year to year. Subject may be taken repeatedly with permission of instructor and advisor.

R. Wedgwood

24.611J Political Philosophy

(Same subject as 17.106J)

Prereq.: One subject in Modern Political Philosophy

G (Fall)

3-0-9 H-LEVEL Grad Credit

See description under subject 17.106J.

J. Cohen

24.701 Topics in Logic

Prereq.: 24.241 or equivalent

G (Fall)

Units arranged H-LEVEL Grad Credit

Can be repeated for credit

Soundness, completeness, and compactness of first-order logic; Skolem-Löwenheim theorems; Craig interpolation lemma; Beth definability theorem; decidability of monadic logic with identity; Turing machines; recursive functions and their definitions; Gödel incompleteness and extensions; undecidability of dyadic logic; Tarski's theorem; nonstandard models of arithmetic.

M. Glanzberg

24.711 Topics in Philosophical Logic

Prereq.: Permission of instructor

G (Spring)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Problems of ontology, epistemology, and philosophy of language that bear directly on questions about the nature of logic and the analysis of concepts of logical theory, such as logical truth, logical consequence, proof. Content varies from year to year, and subject may be taken repeatedly upon permission of instructor and advisor.

V. McGee

24.728 Topics in Semantics

(Subject meets with 24.979)

Prereq.: Permission of instructor

G (Spring)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Seminar on current research in semantics and generative grammar. Topics may vary from year to year. Meets with subject 24.979.

I. Heim, K. von Fintel

24.729 Topics in Philosophy of Language

Prereq.: Permission of instructor

G (Fall)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Major issues in the philosophy of language. Topics change each year and subject may be taken repeatedly with permission of instructor.

J. Higginbotham

24.801 Philosophy of Mathematics

Prereq.: Permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Fall)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Examination of major philosophies of mathematics — logicism, formalism, intuitionism — on the nature of mathematical proof, existence of mathematical entities, and related issues. It is strongly recommended that students have taken 24.241 or equivalent.

Staff

24.805 Topics in Theory of Knowledge

Prereq.: Permission of instructor

Acad Year 1996-97: Not offered

Acad Year 1997-98: G (Fall)

3-0-9 H-LEVEL Grad Credit

Can be repeated for credit

Major issues in Theory of Knowledge. Topics change each year and subject may be taken repeatedly with permission of instructor.

E. Hall

24.808 Rationality and Action

(New)

Prereq.: —

G (Spring)

3-0-9

The distinction between practical and theoretical reasoning; the roles of logic, probability, prudence, and emotion in setting norms of rationality; varieties of agency (causing vs allowing a result, intended vs merely foreseen consequences) and their significance in practical deliberation.

A. MacIntyre