African American Studies

(College of Letters and Science)

Department Office: 660 Barrows Hall, (510) 642-7084
african.berkeley.edu
Chair: Charles Henry, Ph.D.

Professors
Charles Henry (Chair), Ph.D. University of Chicago. Black politics, public policy
Percy Haughton, Ph.D. Yale University. Political sociology, social change
Michael Monroe, Ph.D. University of Illinois. Caribbean anthropology
William M. Banks (Emeritus), Ed.D.
Margaret B. Wilkenren (Emerita), Ph.D.

Associate Professors
Nallah Suzad Nasir, Ph.D. University of California, Los Angeles. Education
Stephen Small, Ph.D. University of California, Berkeley. Sociology
Ulia Taylor (Graduate Adviser), Ph.D. University of California, Santa Barbara. American History

Assistant Professors
Brandi Watkins Cataneo, Ph.D. Stanford University. Drama and humanities (Theatre, Dance, and Performance Studies)

G. Ugo Nwokeji, Ph.D. University of Toronto. African and African American diaspora history, the Atlantic slave trade
Leila Tandon, Ph.D. Department of African American studies and American studies
Daregh Scott, Ph.D. Stanford University. Modern thoughts and literature
Janelle T. Scott, Ph.D. University of California, Los Angeles. Educational policy

Adjunct Professor
Robert Allen, Ph.D. University of California, San Francisco. Sociology

Affiliated Professors
Hardy Frye, Ph.D. University of California, Berkeley.
Jocelyne Guilbault, Ph.D. University of Michigan. Caribbean music studies, popular music, cultural studies (Music)
Waldo E. Martin Jr., Ph.D. University of California, Berkeley. Recent U.S., black, cultural, intellectual (History)
Sam A. Mohsin, Ph.D. University of London. Linguistics
Abdul Jan Mohamed, Ph.D. Brandeis University. African American literature, postcolonial and world literature, critical theory
Tyler E. Stovall, Ph.D. University of Wisconsin, Madison. French history (Matériaux de la France Héritage)
Minh-ha T. Tinh, Ph.D. University of Illinois. Feminist theory, film, and feminist production, comparative literary and art theory, cultural politics, Third World arts and politics

Overview of Curriculum

The Department of African American Studies offers students a bachelor of arts degree as well as a minor in African American studies. The curriculum focuses on Africa and the African diaspora, with particular attention paid to the life and culture of the populations of African descent in North America and the Caribbean. There is also some focus on populations of African descent in Latin America and Europe. The program is interdisciplin ary and prepares students to use and develop analytical approaches to critical issues associated with the African diaspora.

In preparation for declaring a major in African American studies, students should complete the Required Lower Division courses. Students are strongly encouraged to complete the lower division requirements early in their academic program. Upon declaring the major, students are required to complete the following upper division core requirements:

AAS 100—Introduction to African American Studies
AAS 101—Interdisciplinary Research Methods
AAS 116—Colonialism, Slavery, and African American History Before 1865
AAS 117—African Americans in the Industrial Age, 1865-1970, and
AAS H195A-H195B—Senior Honors Thesis

To complete the major, students must take a cluster of eight courses (depending on the major status) courses focused on a specific area of concentration. Such a concentration is expected to form the basis for a senior thesis. Five of the eight courses must be selected from Department of African American Studies course offerings. The remaining three courses may be taken from other departments. The list of areas of concentration and sample programs is available in the department office.

Honors Program. To be eligible for admission to the honors program, a student must have completed at least two semesters at Berkeley and have attained senior standing with a GPA of 3.3 or higher in all University work, as well as a 3.5 GPA or higher in the African American studies major. Students in the program must complete two consecutive semesters of African American Studies H195A-H195B under the supervision of a faculty member, culminating in the completion of a senior honors thesis or equivalent project.

Minor Requirements

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

For the minor in African American studies, students must complete at least one lower division course selected from AAS 4A, 4B, 5A, or 5B and five upper division courses in the Department of African American Studies.

Consistent with Letters and Science requirements, a GPA of 2.0 is required in all courses applied to the minor. Transfer students must have earned a grade of C or higher in all coursework to be applied toward the minor. Students must be a member of the college as of the semester of minor application.

Old Major Requirements

Program changes were effective beginning fall 1995. Students who declared the major before fall 1995 are not required to meet the new requirements. Their programs of study will be based on existing requirements. Students completing College of Letters and Science breadth requirements under the six-course rule should consult with the department regarding the breadth requirement. Refer to requirements listed in the College of Letters and Science Announcement: Earning Your Degree.

Graduate Program

Students are admitted to graduate studies in the fall semester only. Applicants must file a University of California graduate application; two official transcripts from all colleges and universities attended; three letters of recommendation; writing sample (no more than 14 pages) that best reflects their program/research interests. TOEFL (required for all international students). Applications are accepted for the Ph.D. only.

The African American studies graduate program focuses on life, culture, and social organization (broadly defined) of persons of African descent. Africa, North America and the Caribbean are central components of the program. Students are expected to apply a multidisciplinary approach to the study of the international and national divisions of race as they concern persons of African descent, wherever they may find themselves. Such an approach is to be employed for the study and understanding of development and underdevelopment, domination and determination, mutual cooperation, and aesthetic and creative expression. Issues of identity construction, marginality, territoriality, and the universal social areas in the realms of political economy and in class formation are critical to the program’s intellectual agenda.

Applicants must have completed an undergraduate degree and should demonstrate a general knowledge of African American history and an understanding of the disciplinary bases for the study of the African diaspora. Demonstrated knowledge in the field should include understanding relations among social, economic, and political structures and culture in African American life.

Fields of Emphasis

The fields of emphasis are focused in two general areas representing current faculty fields of expertise:

Issues of Development. History of the African Diaspora; Social and Cultural Institutions; Urban Sociology; Politics of Culture; Political Economy of the Diaspora.

Cultural Studies. Comparative Literatures and Cultures; Critical Theory, Popular Culture, Performance and Film; and Women’s Studies.

The University requires a minimum of two years or four semesters of academic residency for all Ph.D. programs. Academic residency is defined as enrollment in at least 4 units in the 100 or 200 series of courses. Thus every graduate student must enroll in and complete a minimum of 4 units of upper division or graduate coursework or both per required semester of academic residency. The program will require at least 48 semester units. At least 24 of the 48 units completed must be graduate courses in the Department of African American Studies. After successful completion of the pre-qualifying examinations, the department will administer a pre-qualifying examination based upon general knowledge in the field of African American studies.

Students who have been accepted to this program and have earned a master’s degree in another program will be evaluated based on requirements for the pre-qualifying examinations.

Lower Division Courses

R1A. Freshman Composition. (4) Three hours of lecture and one hour of discussion per week. Prereq uisites: UC Entry Level Writing Requirement. Formerly 1A. Training in expository, argumentative, and other styles of writing. The emphasis will be on mastery of the rules of composition and the writing of coherent essays.

R1B. Freshman Composition. (4) Three hours of lecture and one hour of discussion per week. Prereq uisites: UC Entry-Level Writing Requirement and 1A. Formerly 1B. Continued training in expository and argumentative writing, with more emphasis on liter ary interpretation. Satisfies the second half of the Reading and Composition requirement. (F,SP) Staff

R4A. Africa: History and Culture. (4) Three hours of lecture and one hour of discussion per week. Emphasis on pre-colonial social, cultural, political, and economic structures; introduction to art, literature, oral traditions, and belief systems. (F) Nwokeji

**B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix/course satisfies R&RC requirement
AC suffix/course satisfies American Cultures requirement

*Professor of the Graduate School
Recipient of Distinguished Teaching Award
4B. Africa: History and Culture. (4) Three hours of lecture and one hour of discussion per week. Emphasis on social, political, and economic change in 20th Century Africa with further emphasis upon the roles of modernization, urbanization, and the emergence of contemporary African states. (F.S.P) Nwokeji

5A. African American Life and Culture in the United States. (4) Three hours of lecture and one hour of discussion per week. A study of the development, growth, and social experience of African Americans. An interdisciplinary approach designed to help students understand the forces and ideas that are influencing the individual and collective African American experience. (F.S.P) Allen

5B. African American Life and Culture in the United States. (4) Three hours of lecture and one hour of laboratory per week. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C7A. (F) Sow

C7A. Elementary Wolof. (4) Four hours of lecture and one hour of laboratory per week. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking, listening, and reading abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C7A. (F) Sow

C7B. Elementary Wolof. (4) Four hours of lecture and one hour of laboratory per week. Prerequisites: C7A. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking, listening, and reading abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C7B. (SP) Sow

C8A. Intermediate Wolof. (4) Four hours of recitation and one hour of laboratory per week. Prerequisites: C7B. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking, listening, and reading abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C8A. (F) Sow

C8B. Intermediate Wolof. (4) Four hours of recitation and one hour of laboratory per week. Prerequisites: C8A. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking, listening, and reading abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C8B. (SP) Sow

C9A. Advanced Wolof. (4) Four hours of recitation and one hour of laboratory per week. This course reviews and expands students' knowledge from Intermediate Wolof. Oral and written communication will be presented in appropriate cultural contexts. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C9A. (SP) Sow

C9B. Advanced Wolof. (4) Four hours of recitation and one hour of laboratory per week. Prerequisites: C9A. This course reviews and expands students' knowledge from Intermediate Wolof. Oral and written communication will be presented in appropriate cultural contexts. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as Linguistics C9B. (F) Sow

C10A. Intermediate Swahili. (4) Four hours of recitation and one hour of laboratory per week. Prerequisites: C10A. This course reviews and expands students' knowledge of fundamental structures from Elementary Swahili and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, independent reading projects, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available from Berkeley's African Library Collection and supplemented by the instructor's materials. Also listed as Linguistics C10A. (F) Jibri

C10B. Intermediate Swahili. (4) Students will receive no credit for C11B after taking Linguistics 1B. Four hours of recitation and one hour of laboratory per week. Prerequisites: C10A. This course reviews and expands students' knowledge of fundamental structures from Elementary Swahili and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, independent reading projects, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available from Berkeley's African Library Collection and supplemented by the instructor's materials. Also listed as Linguistics C10B. (SP) Jibri

C11A. Elementary Swahili. (4) Students will receive no credit for C11A after taking Linguistics 1A. Four hours of recitation and one hour of laboratory per week. Prerequisites: Elementary Swahili. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in a culturally and socially appropriate context. Speaking, listening, and reading abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Swahili. Also listed as Linguistics C11A. (SP) Mchombo

C11B. Elementary Swahili. (4) Students will receive no credit for C11B after taking Linguistics 1B. Four hours of recitation and one hour of laboratory per week. Prerequisites: C11A. This course introduces students to the basics of speaking, listening, reading, and writing in Swahili. Instruction is mixed English and Swahili. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Swahili. Also listed as Linguistics C11B. (SP) Mchombo

C13A. Elementary Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course introduces students to speaking, listening, reading, and writing in Zulu. Emphasis is placed on developing student ability to create and to communicate with basic Zulu structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Zulu. Also listed as Linguistics C13A. (F) Sibanda

C13B. Elementary Zulu. (4) Four hours of lecture and one hour of laboratory per week. Prerequisites: C13A. This course introduces students to speaking, listening, reading, and writing in Zulu. Emphasis is placed on developing student ability to create and to communicate with basic Zulu structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Zulu. Also listed as Linguistics C13B. (SP) Sibanda

C14A. Intermediate Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students' knowledge of fundamental structures from Elementary Zulu. Oral and written communication will be presented in appropriate cultural contexts. Speaking and listening abilities are developed through oral exercises, independent reading projects, and recordings available from Berkeley Language Center. Reading and writing are expanded through compositions, written exercises, and independent reading projects with texts available from Berkeley's African Library Collection and supplemented by the instructor's materials. Also listed as Linguistics C14A. (F) Sibanda

C15. Geographies of Race and Gender. (4) Three hours of lecture and one hour of mandatory discussion per week. What can geography contribute to our understanding of gender inequality and racial discrimination in a globalizing world? The course examines: (a) how supposedly "natural" differences are actually produced through everyday practices in particular spatial contexts; (b) the intersections of historical geographies of race and gender in the US in relation to those in other parts of the world, including South Africa; and (c) how these concepts and compar-
ings available at the Berkeley Language Center. Writing, grammar, vocabulary and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as Linguistics C15A. (F) Mchombo

C19A. Advanced Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Elementary Chichewa and appropriate cultural contexts of these structures in oral and written communication. More grammar, vocabulary and reading are developed through in-class exercises, independent reading projects, and compositions. This course is open to native or heritage speakers of Chichewa. Also listed as Linguistics C23A. (F) Mchombo

93. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Semester format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in a variety of departments and are devoted to department and from semester to semester. (F,SP) Staff

84. Sophomore Seminar. (1.2) Course may be repeated for credit as topic varies. One hour of seminar per week for units for 1 unit. One and one-half hours of seminar per week for units for 1.5 units. Two hours of seminar per week for units for 2 units. Three hours of seminar per week for units for 3 units. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. These seminars offer students the opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

27AC. Lives of Struggle: Minorities in a Majority Culture. (3) Three hours of lecture per week. The purpose of this course is to examine the many forms that the struggle of minorities can assume. The focus is on individual struggles and their outcome as reported and perceived by the individuals themselves. Members of the minority aggregates are considered: African Americans, Asian Americans (so called), and Chicana/o. The choice of these three has to do with the different histories of members of these aggregates. Such differences have produced somewhat different approaches to struggle. This course satisfies the American Cultures requirement. (F) Hintzen

100. Introduction to African American Studies. (4) Three hours of lecture and one hour of lab per week. Prerequisites: Reading and composition requirement. This course introduces students to speaking, listening, reading, and writing in Chichewa. Instruction is mixed English and Chichewa. Emphasis is placed on developing student ability to create and to communicate with basic Chichewa structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course is open to native or heritage speakers of Chichewa. Also listed as Linguistics C30A. (F) Mchombo

130A. Elementary Chichewa. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Elementary Chichewa and appropriate cultural contexts of these structures in oral and written communication. More grammar, vocabulary and reading are developed through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as Linguistics C30A. (F) Mchombo

93. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Semester format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in a variety of departments and are devoted to department and from semester to semester. (F,SP) Staff

84. Sophomore Seminar. (1.2) Course may be repeated for credit as topic varies. One hour of seminar per week for units for 1 unit. One and one-half hours of seminar per week for units for 1.5 units. Two hours of seminar per week for units for 2 units. Three hours of seminar per week for units for 3 units. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. These seminars offer students the opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Studies for Freshmen and Sophomores. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Supervised research. Must be taken on a passed/not passed basis. Supervised research on specific topics related to African American studies. (F,SP)

99. Supervised Independent Studies for Freshmen and Sophomores. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Supervised research. Must be taken on a passed/not passed basis. Supervised research on specific topics related to African American studies. (F,SP)

Upper Division Courses

101. Research Methods for African American Studies. (4) Three hours of lecture and one hour of labora- tory per week. Prerequisites: Introductory statistics. As an introduction to interdisciplinary research methods as they are applied to the study of African Amer- ican communities, the course will examine theoretical and conceptual issues; techniques for identifying exist- ing research; and sources and methods of social research and data collection. The main focus will be on qualitative methods.

107. Race and Public Policy. (3) Three hours of lecture per week. This course examines the formation and implementation of public policies directly relevant to the black community. While the policies analyzed will differ from year to year, Dr. Joe’s approach to methodology will be introduced each year. Henry

109. Black and Male in American Life. (3) Three hours of lecture per week. Prerequisites: Upper divi- sion status. The course examines ways gender and race constructions shape the lives of African American males. Developmental in design, this course explores such issues as childhood, adolescence, gender relations and family, and the world of work. (SP) Staff

111. Race, Class, and Gender in the United States. (3) Three hours of lecture per week. Prerequisites: Reading and composition requirement. Emphasis on African American history and comparative study of race, class, and gender relations in American society. Examines both similarities and differences, and highlights gender politics.

120. Political and Economic Development in the Third World. (4) Four hours of lecture per week. An examination of the structural and actual manifesta- tions of Third World underdevelopment and the broad spectrum of theoretical positions put forward to explain it. Underdevelopment will be viewed from both the international and international perspective. (F) Hintzen

119. Selected Topics in the Sociohistorical Devel- opment of the Black World. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: Determined by offering. Topics will vary each semester. (F,SP)

121. Black Political Life in the United States. (4) Three hours of lecture and one hour of discussion per week. This course will examine the origins of the African slave trade, and explore poli- tical, economic, and social factors shaping African American life and culture prior to 1865. (F,SP) Taylor

117. African Americans in the Industrial Age, 1865- 1970. (4) Three hours of lecture and one hour of discus- sion per week. With emphasis given to the organiza- tion of labor in the United States, this course will explore the history of African American cultural, institu- tions and protest traditions from the Civil War to the Civil Rights Movement. (SP) Taylor

122. African American Families in American Soci- ety. (3) Three hours of lecture per week. Prerequi- sites: SB or introductory course in sociology. Examines the historical roles and functions of families in the development of black people in America from slavery to the present.

123. Social and Political Thought in the Diaspora. (3) Three hours of lecture per week. An examination of the political thought of African Americans traveling across the diaspora, with particular focus on the 19th and 20th centuries. (F,SP) Small

124. Political Philosophy of Martin Luther King Jr. (3) Three hours of lecture per week. Using the thought and actions of Martin Luther King Jr., this course traces the major events of the Civil Rights Move- ment. Reading includes original works by King as well as secondary sources with a special emphasis on African American religion, nonviolence, and integra- tion.

125. History of the Civil Rights Movement. (4) Three hours of lecture per week. The objective of this course is to examine the modern civil rights movement. As understood traditionally, this period began with the United States Supreme Court decision of May 17, 1954 in Brown vs. Board of Education, and ends with the passage of the Voting Rights Act of 1965. This course
will seek to place this movement in the context of global developments and in the context of the broad sweep of United States history. Assigned readings consist of historical texts and autobiographies. Lectures will place the readings in context, discussing the material and its significance in the overall history and culture of African Americans. Visual and musical media will augment the class lectures. (F,SP) Taylor

126. African American Women’s History. (4) Three hours of lecture per week. This course will examine substantive issues in the African American female experience from colonial times to the present. The dominant themes of this course include family, work, community, sexuality, and individual and collective activism. Particular attention will be paid to the interplay between race, class, and gender in American society. Assigned readings consist of an introduction to the field, articles and papers by and/or written in the interest of African American women’s history. Lectures and discussions will examine the readings in context. Videos will augment the lectures and discussions. (F) Taylor

131. Caribbean Societies and Cultures. (3) Three hours of lecture per week. Comparative study of Spanish, Dutch, English, and French-speaking Caribbean societies. Analysis of Caribbean social structure including the development of the plantation system, urban dynamics, ethnic politics, family structures, and ecology of Afro-Caribbean groups. Emphasis will be placed on the development of communication methods and conclusions regarding African Americans offered by American psychology from its origins to the present. Also listed as Psychology C105. (SP) Laguerre

132. Psychology of African American People: Current Issues. (3) Three hours of lecture per week. Prerequisites: African SB 50 or T101A, or upper division course in psychology. Examines psychological research and theory pertaining to African American people. Emphasis will be placed on the development of communication methods and conclusions regarding African Americans offered by American psychology from its origins to the present. Also listed as Psychology C105. (SP) Laguerre

C133A. Race, Identity, and Culture in Urban Schools. (1-2) Two hours of lecture per week. This course will focus on understanding urban schools as a part of a broader system of social stratification and the process by which students in urban schools come to a sense of themselves as students, as members of cultural and racial groups, and as young people in America. Topics include: race identity; race/ethnicity in schools; urban neighborhood contexts; and schooling in the juvenile justice system. Students will also integrate course readings with their own first-hand experience working in one of several off-campus sites. This course has a mandatory community engagement component. Students who earn 1 unit of field study (197) credit. Also listed as Education C181. (SP) Nasisir

134. Information Technology and Society. (4) Three hours of lecture per week. This course assesses the role of information technology in the digitalization of society. The development and impact of new digital technologies, within the contexts of e-government, e-commerce, e-learning, the digital city, telecommunications, virtual communities, Internet time, the virtual office, and the geography of cyberspace. Course will also discuss the role of information technology in the governance and economic development of society. (F,SP) Laguerre

C134. Information Technology and Society. (4) Students will receive no credit for C134 after taking C134. Three hours of lecture per week. This course assesses the role of information technology in the digitalization of society by focusing on the deployment of e-government, e-commerce, e-learning, the digital city, telecommunication, virtual communities, Internet time, the virtual office, and the geography of cyberspace. Course will also discuss the role of information technology in the governance and economic development of society. Also listed as American Studies C134. (F,SP) Laguerre

135. Caribbean Cultural History. (3) Three hours of lecture per week. Examination of the history and cultural evolution of the French, Dutch, Spanish, and English-speaking Caribbean societies from the slavery era to the Second World War. Particular attention will be paid to the cultural institutions and practices; immigration of Chinese, East Indians, Lebanese, Canary Islanders, and Jews during the post-emancipation period; political history; and the historical and structural evolution of Caribbean cities. (F) Laguerre

137. Multicultural Communities. (3) Three hours of seminar per week. Examination of theoretical issues in urban anthropology and sociology pertaining to the United States as a multicultural society. Comparative analysis of the ecology and social structure of African American, Asian American, Mexican American, and Afro-Caribbean urban communities with special emphasis on social class, ethnicity, and culture. (SP) Laguerre

138. Black Nationalism. (4) Four hours of lecture per week. Prerequisites: Determined by offering. This course will seek to place this movement in the context of black nationalism and its historical and intellectual development. Special attention will be given to the role of African American religion and the attempt to develop “black socialism.” (F,SP) Henry

139. Selected Topics of African American Social Issues. (3-5) Three hours of lecture per week. Prerequisites: Determined by offering. Topics will vary each semester. (F,SP) Staff

140. Special Topics in Cultural Studies. (1-4) Four hours of lecture per week. Prerequisites: Determined by offering. Topics will vary each semester. (F,SP) Staff

142A. Third World Cinema. (4) Three hours of lecture, plus two hours of viewing/discussion per week. Prerequisites: Reading and Composition requirement. Examines through lectures and a selection of films, the development and achievements of Third World motion picture artistry. Social, political, and cultural themes are discussed, with particular emphasis given to major works from Asia, Africa, and Latin America. Other newly developed film sources from abroad are presented for critical assessment. (F)

142AC. Race and American Film. (4) Three hours of lecture and two hours of viewing/discussion per week. Prerequisites: Reading and Composition requirement satisfied. This course uses film to investigate the cultural role of race in American cinema and culture. Using films as the primary texts, the course will explore the relationship between these films and the social and political contexts from which they emerged. Looking at both mainstream and independent cinema, the course will chart the continuities and varieties of representations and negotiations of “race.” The course spans the 20th century, covering (among other topics) Jim Crow in silent film, Westerns and westerns, documentary film, and experimental cinema. This class will concentrate on the history of African Americans in film, but we will also watch movies that consider how the overlapping histories of African Americans in film, and the cultural representations and negotiations of “race.” The course spans the 20th century, covering (among other topics) Jim Crow in silent film, Westerns and westerns, documentary film, and experimental cinema. This class will concentrate on the history of African Americans in film, but we will also watch movies that consider how the overlapping histories of African Americans, Asian Americans, Mexican Americans, the “Third World,” and “multiculturalism” have been represented in film. Themes covered include representing race and nation; the borders; passing and miscegenation; the intersections of race, gender, and sexuality. This course satisfies the American Cultures requirement. (F,SP) Laguerre

142BD. Race and American Film. (4) Two hours of lecture and two hours of discussion/viewing. Prerequisites: Reading and Composition requirement. This course uses film to investigate the central role of race in American culture and history. Using films as the primary texts, the course will explore the relationship between these films and the social and political contexts from which they emerged. Looking at both mainstream and independent cinema, the course will chart the continuities and varieties of representations and negotiations of race. (F,SP) Raiford

C143B. Research-to-Performance Laboratory. (3) Three hours of lecture per week. Prerequisites: 143A or equivalent or consent of instructor. Study and production of a play by an African American writer. The play will be studied within its social and historical context. Students will participate in the various aspects of theatre production. Also listed as Theater, Dance, and Performance St C183C.

144. Introduction to Cultural Studies: Black Visual Culture. (4) Three hours of lecture per week. Prerequisites: Reading and Composition requirement. This course will concentrate on the history of African Americans in film, but we will also watch movies that consider how the overlapping histories of African Americans, Asian Americans, Mexican Americans, the “Third World,” and “multiculturalism” have been represented in film. Themes covered include representing race and nation; the borders; passing and miscegenation; the intersections of race, gender, and sexuality. This course satisfies the American Cultures requirement. (F,SP) Laguerre

145. Gospel Chorus. (2) Course may be repeated for credit. Three hours of large ensemble and one hour of sectional per week. A course that will focus on the performance of choral music of the African American gospel music tradition with a particular emphasis on contemporary performance techniques. The Gospel Chorus, as is the case with other formal University music performance ensembles, will prepare music to be presented to the public in at least two concerts each semester. Students will be selected for the chorus on the basis of individual auditions. Also listed as Music C143. (F,SP) Henderson

150B. African American Literature 1920 to Present. (3) Three hours of lecture per week. Survey of African American literature from the Harlem Renaissance to the present. A close analysis of major writers, premises. (F,SP)

C151A. African American Plays from 1858 to 1959. (4) Three hours of lecture per week. Prerequisites: Reading and Composition requirement. Historical survey of plays by African American writers and the portrayal of the black experience in theatre. Emphasis on predominant themes, structural tendencies, socio-historical context. Also listed as Theater, Dance, and Performance St C131B. (SP)

C151B. Contemporary African American Drama. (4) Four hours of lecture per week. Prerequisites: 151A or consent of instructor. Survey of contemporary plays by African American writers and the portrayal of the black experience in American theatre. Emphasis on predominant themes, structural tendencies, socio-historical context. Also listed as Theater, Dance, and Performance St C131B. (SP)

C153A. Images of African American Women in Literature: Slavery to the 20th Century. (3) Three hours of lecture per week. One hour of seminar. Prerequisites: Reading and Composition requirement. Analysis of the cultural, literary, and social assumptions that contribute to the various images of African American women in Western literature and African American
writing. The course explores the literature of 19th- century African American women, an exploding field in American literary discourse. Also listed as Gender and Women's Studies C153A. (F)†

C153B. Contemporary Images of African American Women: Poets. Three hours of lecture and one hour of discussion per week. Prerequisites: Reading and Composition requirement. Analysis of the cultural and social assumptions and dynam- ics underlying the image of the African American woman in contemporary Western African American writing. Also listed as Gender and Women's Studies C153B. (SP)†


155. Literature of the Caribbean: Significant Teaching of Poetry. (4) Four lecture hours per week. Prerequisites: Reading and Composition requirement. An introduction to representative works, themes, and dis- courses in Caribbean literatures—produced by authors from the Anglophone, Creolophone, Francophone, and Hispanophone areas within Plantation America. Includes examinations of indigenous folkways and nation languages as sources for a re-examination of Caribbean culture and literary history. (F) Clark (F,SP)

156AC. Poetry for the People: Introduction to the Art of Poetry. (4) Course may be repeated for credit. Two to three hours of lecture and one to two hours of discussion per week. A large lecture/discussion class which introduces students to poetry as culture, history, criticism, politics, and practice. Focusing com- paratively on poetry from three African racial/ethnic groups, this course requires students to learn both the technical structure of various forms of poetry as well as the world views which inform specific poetic tra- ditions. The groups and traditions vary from semester to semester. This course satisfies the Arts and Liter- ature breadth requirement. This course satisfies the American Cultures requirement. (F,SP)

158A. Poetry for the People: The Writing and Teaching of Poetry. (4) Four hours of seminar per week, plus community workshop teaching. Prerequisites: 158AC, plus consent of instructor. The focus of this course is on the writing of poetry, and students undertake an intensive study of both the techniques of poetry and the social and cultural context of specific poetic traditions. Students must "imitate" the poems they study, write critical papers comparing poetic tra- ditions, and write an original manuscript of new poems. In addition, they must produce an on-campus poetry reading and are required to teach for five to seven weeks at one of the assigned Poetry for the People venues. This course satisfies the Arts and Liter- ature breadth requirement. This course satisfies the American Cultures requirement. (F,SP)

158B. Poetry for the People: Practicum. (4) Four hours of seminar, plus peer teaching and performance. Prerequisites: 158A. A teaching practicum, with the requirement of supervision of the instructor, for students who completed 156AC during the previous year and 158A in the previous fall. They serve as student teachers for poets for 158AC. The focus of 158B is on the practical aspect of the poet as teacher. The course is open to groups of seven to 10 students, and, under the direct supervision of the instructor, helps the students in his/her group learn to read, criticize, and pro- duce poetry that satisfies the American Cultures requirement. (SP)

159. Special Topics in African American Litera- ture. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: Reading and Composition requirement, plus three-hour topic. Topics include Special topics in African American literature. (F,SP)

160. African Literatures. (4) Three hours of lecture per week. An introduction to writings by African authors from the Anglophone, Francophone, and Lusophone regions of colonized Africa. The course sets the read- ings within the contexts of their articulation from the 1930s through 1980s, from dependence through inde- pendence and neo-colonialism or post-colonial writing. Clark (F,SP)

161. African Theater. (4) Three hours of lecture per week. Prerequisites: 160 or consent of instructor. The course introduces readers to dramatic texts produced in France, Africa, and the Caribbean from 1958 to the present. From Genet's The Blacks through Aodoo's Ama a, the course develops an understanding of theater with practice. Based on a research-to-performance method, the course requires students to produce a one-act play derived from either existing or current research. Clark (F,SP)

162. Caribbean Literature by Women Authors: Marasa. (4) Three hours of lecture per week. This course in literary theory uses concepts of twinning in African Diaspora discourse as a means of over- coming binary oppositions in contemporary capitalism in the Caribbean. Includes novels and testimonial literature by authors from the Creole, English, French, Portuguese, and Spanish Caribbeans -names, contemporary works by Merle Hodge, Jean Rhys, Simone de Beauvoir, Carolina del Jesus, and Rosario Ferre. (F,SP) Clark (F,SP)

163. African Literature by Women. (4) Three hours of lecture per week. Prerequisites: Reading and com- position requirement. An introduction to writing by women authors from East, Southern, West Africa, and the Maghreb. Course explores 19th-century orature, early settler narratives, and 20th-century significant themes and discourses, such as polygamy, bride price, motherhood, the veil, apartheid, novels of formation, and narrative and historical perspectives. Clark (F,SP)

C170. Fanon and the Network Society. (4) Three hours of seminar per week. Fanon is one of the foremost theorists of race and decolonization in the 20th century. Today, we are no longer under the Cold War, and Fanon's critique of the message of the book is technification of society may make us believe that reading Fanon may have historical interest but be irrelevant to dealing with issues brought about by globalization and the net- work society. The seminar will consider Fanon's theories of the human and social sciences, along with Frantz Fanon's texts on decolonization, society, and subjectiv- ity, in order to imagine a more just, democratic, and “human” society. Also listed as Ethnic Studies C170. (F,SP) Maldonado-Torres (F,SP)

C178. Cultural Studies. (4) Three hours of lecture/ discussion per week. Although the Caribbean has been recognized in recent years as being one of the most compelling areas in regard to questions of inter- cultural theory, it is only in the last 15 years that the speaking part of it has somehow been neglected. This course intends to give an opportunity to those who do not necessarily have a command of Dutch lan- guage, but wish to complete their knowledge of Latin- American and Caribbean history, culture, and litera- ture. Also listed as Spanish C178 and Dutch C178. (F,SP) Staff (F,SP)

190AC. Advanced Seminar in African Diaspora Studies. (3-4) Course may be repeated for credit as topics change. This course will focus on one topic per week. For a four-unit course, an extra assignment/research compo- nent will be added to the course to increase contact hours with students. Possible components include additional readings, in-depth review of projects and other projects which the instructor feels will add to the value of course. Topics to be announced at the beginning of each semester. This course satisfies the American Cultures requirement. (F,SP) Staff (F,SP)

H195A-H195B. Senior Honors Thesis. (2-3) Regular individual meetings with faculty sponsor. Credit and grade to be awarded on completion of sequence. Prerequisites: Senior standing and 3.5 GPA overall and in major. The major will complete a primary research project under the guidance of one and advanced topic with faculty sponsor. Fulfills department thesis requirement. Application and details at departmental adviser’s office. Students must enroll for both semes- ters of the sequence. (F,SP) Staff

197. Field Study in African American Life. (1-4) Course may be repeated for credit. Enrollment is restricted: see the “Introduction to Courses and Cur-ricula” section of this catalog. Must be taken on a passed/not passed basis. Supervised field work in off-campus organizations. Regular individual meet- ings. Hours to be specified. Independent study form available in department office. (F,SP) Staff

198. Directed Group Study for Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted: see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Supervised research on a specific topic. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted: see the “Introduction to Courses and Cur-ricula” section of this catalog. Must be taken on a passed/not passed basis. Forms for independent study are available in the department office. (F,SP) Staff

Graduate Courses

201A. Interdisciplinary Research Methods. (4) Three hours of seminar per week. This seminar will provide detailed instruction in knowing knowledge of the various methodological techniques appro- priate for interdisciplinary research on the African diaspora.

202. Qualitative Research Methods for African American Studies. (4) Four hours of seminar per week. This course will cover competing epistemologies in qual- itative research of African Americans. (SP) Small

240. Special Topics in Cultural Studies of the Dias- pora. (1-4) Course may be repeated for credit. One to four hours of lecture per week. One hour of lecture per week per unit. Topics will vary from term to term depending on student demand and faculty availabil- ity. (F,SP) Staff

241. Special Topics in Development Studies of the Diaspora. (1-4) One to four hours of lecture per week. One hour of lecture per week per unit. Topics will vary from term to term depending on student demand and faculty availability. (F,SP) Staff

251. African American Women's History. (4) Three hours of seminar per week. The objective of this course is to examine substantive issues in the African American female experience from colonial times to the present. The domain of this course include family, work, community, sexuality, and indi- vidual and collective activism. (F) Taylor (F,SP)

253A. Public Policy Analysis: Race and Culture in Domestic Policy. (4) Three hours of seminar per week. This course will use the issues of full employ- ment and multiculturalism as an approach to examin- ing the impact of race and culture on domestic policy. Our focus will be on the process of political innovation and agenda setting rather than the more traditional areas of institutional decision-making and implementation, because it is usually at the formative stage that crucial decisions are made. (SP) Henry (F,SP)

256A. Multiculturalisms. (4) Three hours of semi- nar per week. The course will cover an epistemological and hermeneutic approach to locate and study the ethi- nic question in the U.S., Canada, and Europe. It examines the social construction of ethnicity and deconstructs it in relation to the gender and class positions of the subject. Modernist and postmodernist theories dealing with state formation and inter-ethnic relations will be scrutinized. National, transnational, and global aspects of ethnicity will be discussed. (F) Laguerre (F,SP) Staff

256B. Diaspora, Citizenship, and Transnational- ity. (4) Three hours of seminar per week. This seminar analyzes the social construction and reproduction of diasporic communities in the U.S., Canada, and Canada, and Canada,
Europe. It examines the relations of the diaspora to the homeland in the context of the globalization process. The role of transnational migration and determinantization in the production of bipolar, fragmented, and multiple identities will be analyzed. Postnational models of citizenship—differentiated, transnational, and multicultural—will be assessed in light of poststructuralist theories. (SP) Laguerre

257A. Identity Politics in the Caribbean and Africa. (4) Three hours of lecture per week. An exploration and examination of the conditions under which identity constructs (race, ethnicity, nation, religion, language, region, etc.) come to occupy the symbolic center in the organization of mass political movements in non-industrialized Third World societies. The course will be comparative in scope using case histories from Africa and the Caribbean. It will focus on the relationship between the “politics of identity,” national economic decision making, and the distribution of economic, social, cultural, and symbolic capital. (SP) Hintzen

257B. Power, Domination, and Ideology. (4) Three hours of seminar per week. This course will focus on theories and realities of power, domination, and ideology as they pertain to issues of identity in the post-World War II political economies of Africa and the African diaspora. Hintzen

262. Black Feminist Criticism. (4) Three hours of seminar per week. This seminar will focus on the theoretical development of a black feminist criticism(s). We will be specifically concerned with the writings of significant black women critics of the 19th and 20th centuries who have intersected identities, race, and gender to analyze major issues of their time. (SP, F) Davis

263. Comparative Diaspora Discourses. (4) Four hours of seminar per week. The seminar investigates imitation, protest, and reformation of form in narratives produced by authors from East/West Africa and the Caribbean. The seminar will draw from applicable biographies from African and European languages, Creoles, and pidgins from the 18th to 20th centuries. (SP) Clark

264. Migrations of the Word. (4) Three hours of discussion per week. An interdisciplinary approach to border crossing theories and to the self-migrating beyond homeplace in literary works and migration studies devoted to the African diaspora. Particular attention is given to writings produced in exile or through nomadism and errance. (SP) Clark

C275. Slave Traffic and Colonial History in Literature. (4) Three hours of lecture per week. In this course, we will study the historic and social consequences as they were portrayed in poetry, fiction, autobiography, and ethnography by writers on both sides of the trans-Atlantic trade in former Portuguese colonies. The relevance of this experience and discussion has been extensively dealt with in literature. Written accounts in different genres can lead us through multiple narratives about cultural responsibilites and such events. Also listed as Portuguese C275. (F,SP) Martinho

286. The Education of African-American Students. (3) Three hours of seminar per week. Prerequisites: Undergraduates may enroll with consent of instructor. This seminar will examine a wide range of perspectives on the education of African American children and adolescents in the United States. Readings will support students in understanding some of the key issues and tensions in African American education and school achievement, including the roles that culture, identity, parents, families, and communities play in the education and schooling of African American students; the contribution of diasporic movement and the perpetuation of “achievement gaps”; and language and power. Also listed as Education C286. (SP) Nasir

296. Directed Dissertation Research. (1-8) Course may be repeated for credit. One to eight hours of independent study per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Advancement to Ph.D. candidacy. Open to qualified students who have been advanced to candidacy for the Ph.D. degree and are directly engaged in doctoral dissertation research. (F,SP) Staff

299. Individual Study or Research. (1-4) One to four hours of independent study per week. Prerequisites: Consent of instructor. Individual study or research program to be worked out with student faculty before approval by department chair. Regular meetings arranged with faculty sponsor. (F,SP) Staff

Graduate Courses

602. Individual Study for Doctoral Students. (2-8) Course may be repeated for credit. Individual conferer. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Individual study, in consultation with group faculty, to prepare students for the doctoral oral examinations. A student will be permitted to accumulate a maximum of 8 units toward examination preparation. Units earned in this course may not be used to meet academic residence or unit requirements for the master’s or doctoral degree. (F,SP)

Professional Courses

C301. Critical Pedagogy: Instructor Training. (4) Two hours of seminar and two hours of practicum per week. The seminar provides a systematic approach to theories and practices of critical pedagogy at the university level. Examines the arts of teaching and learning and current disciplinary and cross-disciplinary issues on the African Studies. Participation two hours per week as practicum in 39, “Introduction to the University: African American Perspectives” is mandatory. The course is required for students expecting to serve as graduate student instructors in the department. (F,SP)

301. Critical Pedagogy: Instructor Training. (4) Two hours of seminar and two hours of practicum per week. The seminar provides a systematic approach to theories and practices of critical pedagogy at the university level. Examines the arts of teaching and learning and current disciplinary and cross-disciplinary issues in African and diaspora studies. Participation two hours per week as practicum in 39, “Introduction to the University: African American Perspectives” is mandatory. The course is required for students expecting to serve as graduate student instructors in the department. (F,SP)

Agricultural and Resource Economics

(College of Natural Resources)

Department Office: 207 Giannini Hall, (510) 642-3345 are.berkeley.edu

Chair: Larry Karp

Professors

Peter Berck, Ph.D. Massachusetts Institute of Technology. Natural resources, applied microeconomics
Severn Borenstein (Professor of Business Administration and Agricultural and Resource Economics) Ph.D. Massachusetts Institute of Technology. Industrial organization and government regulation, law and economics, applied macroeconomics
Alain de Janvry, Ph.D. University of California, Berkeley. International rural economic development
Anthony C. Fisher, Ph.D. University of California, Berkeley. Natural resources and environmental public economics, microeconomic theory
J. Keith Gilles, Ph.D. University of Wisconsin, Madison. Forest economics and management
W. Michael Hanemann, Ph.D. Harvard University. Resource economics, applied microeconomics
Arn E. Harrison, Ph.D. Princeton University. International trade policy
Larry S. Kaufman, Ph.D. University of California, Davis. International trade policy
Jeffrey A. Keay, Ph.D. Massachusetts Institute of Technology. Labor, industrial organization
Gordon C. Rausser, Gordon Spraul Chair in Agricultural and Resource Economics, Ph.D. University of California, Davis. Agriculture and resource policy
Jeffrey M. Roem, Ph.D. University of Illinois. Forest and land and water policy
Elizabeth L. Scoult, Ph.D. University of Geneva. International economic development
David L. Sunding, Ph.D. University of California, Berkeley. Agricultural and natural resource policy, welfare analysis

Brian D. Wright, Ph.D. Harvard University. Agriculture and resource policy

David Blundell-Brown, Ph.D. University of California, Berkeley. Resource and quantitative policy

*Irma Adelman (Emerita)

*George Judge (Emeritus), Ph.D.

Associate Professors

Ethan Ligon, Ph.D. University of Chicago. Rural development, information technology
Edward Miguel (Associate Professor of Economics and Agricultural and Resource Economics) Ph.D. Harvard University. Economic development

Sofia Villas-Boas, Ph.D. University of California, Berkeley.

Industrial organization, applied economics

Catherine Wolfram (Associate Professor of Business Administration and Agricultural and Resource Economics) Ph.D. Massachusetts Institute of Technology. Regulation of renewable energy, energy efficiency, electricity industry restructuring

Assistant Professors

Michael L. Anderson, Ph.D. Massachusetts Institute of Technology. Environmental economics, health economics, applied economics

Maximilian Auffhammer, Ph.D. University of California, San Diego. Environmental and resource economics, economics

Jeremy Magnud, Ph.D. Yale University. International economic development

Christian Traeger, Ph.D. University of Heidelberg. Environmental economics, decision theory, intertemporal welfare analysis

Adjunct Professors

Sara Boettiger, Ph.D. University of California, Berkeley. Economics of innovation and intellectual property rights, international development, economics of philanthropy

David Roland-Holst, Ph.D. University of California, Berkeley. International economic development, environmental economics, applied general equilibrium modeling

Leo K. Simon, Ph.D. Princeton University. Econometrics, policy

Amparo Zeller, Ph.D. University of California, Berkeley. Economics

Adviser: Gail Vawter, 203 Giannini Hall, (510) 642-3347

Undergraduate Program

Choice of College

Students can complete a major in environmental economics and policy in either the College of Letters and Science or a Bachelor of Arts (B.A.) degree or the College of Natural Resources for a Bachelor of Science (B.S.) degree. Major and breadth requirements are identical for all students, regardless of college. Please refer to the web site of the appropriate college for details. All students must complete the L&S seven-course breadth requirements and essential skills before graduation. Junior transfer students must satisfy these requirements by completing IGETC.

Major in Environmental Economics and Policy

The undergraduate major in environmental economics and policy (ENVECON) offers an opportunity to explore those aspects of economic and political institutions which affect the development and management of natural resources and the environment. The focus of concern includes both renewable resources such as food, forests and water, and resources in fixed supply such as land and minerals. The distinctive feature of the major is that it adopts a problem-solving approach to these issues. The core requirement for the major is micro-economic theory, and the economics of resource and the environment. These core courses are supplemented by other courses that apply the methods of social science to resource problems.

The major is structured to ensure that students obtain a sufficient background in the natural and physical sciences and sufficient training in basic mathematics, statistics, and communication skills in order to approach resource-related issues in an effective and practical manner. It can also be excellent preparation for the business student. Students who graduate from the major are prepared to undertake a career in public or private agencies and firms engaged in the planning or management of natural resources, or to enter graduate school for further study in programs such as economics, law, public policy, business, or resources administration.
Lower division major requirements include a course in microeconomics and courses in calculus (equivalent to Mathematics 16A-16B or 1A-1B) and statistics.

Upper division work includes courses in methodological economics, environmental economics and policy, and courses in an area of concentration chosen by the student. For specific major requirements, contact the Student Services Office, 203 Gianni Hall, (511) 642-3347 or go to are, berkeley.edu/UnderGradStudy.html.

Minor Program
Students may declare a minor in environmental economics and policy. A minimum of six courses from the ENVCON curriculum is required. Students must declare in advance their intention to minor with the undergraduate adviser. Students who believe they have already completed the requirements for a minor should apply for departmental certification. For more information, contact Gail Vaveter, Student Affairs Officer, 203 Gianni Hall, (510) 642-3347.

Graduate Programs
The Department of Agricultural and Resource Economics offers graduate programs leading to the M.S. and Ph.D. degrees. Because of quota limitations, students are rarely admitted for master's degrees, although it may be awarded to students who are pursuing the Ph.D. in our program (or in another field at Berkeley) after fulfillment of the appropriate M.S. requirements. Applicants should hold a degree (not necessarily in agricultural economics) comparable to a bachelor's degree at the University of California and must have demonstrated a high potential for advanced study.

The agricultural and resource economics program is quite flexible; however, each program stresses economic theory, quantitative methods, and some specific elective fields defined in consultation with the graduate adviser. Some common elective fields include agriculture in economic development, agricultural policy, natural resource economics, markets, and international trade.

The first year of coursework in the Ph.D. program is normally devoted to economic theory and quantitative methods, with some elective fields defined in consultation with the specific faculty members, and students normally complete the coursework required in the first year.

Outstanding facilities are available within the department, including the Gianni Foundation Agricultural Economics Library, one of the world's foremost research libraries of its type.

Environmental Economics and Policy

Lower Division Courses

C1. Introduction to Environmental Economics and Policy. (4) Students will receive 2 units of credit for C1 after taking Economics 1. Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 32. Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues. Also listed as Economics C3, (F,SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit with different topic. One hour of seminar per week. Sections 1-2 to be graded on a pass/not passed basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman Seminar Program has been designed to acquaint new students with the opportunity to explore an intellectual topic with a faculty member in a small, seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 25 freshmen. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore in small groups a field of interest, with guidance of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limited to 25 sophomores. (F,SP)

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Studies (for Lower Division Students). Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. One and one-half hour of meeting per unit per week. To be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of Instructor. Group study courses include a directed study (or seminar) of a selected topic or topics in Environmental Economics and Policy. (F,SP)

Upper Division Courses

100. Microeconomic Theory with Application to Natural Resources. (4) Students who have taken Econ 100A, 101A, or Bus Adm 110 will receive only 2 units of credit for 100. Three hours of lecture and one hour of discussion per week. Prerequisites: Environmental Economics and Policy 1 or Economics 1 and Math 16A or consent of instructor. Covers the basic microeconomic tools for further study of natural resource problems. Theory of consumption, production, distribution and consumption, the firm, industrial organization, general equilibrium, public goods, and externalities. Application to the use and conservation of natural resources. (F,SP)


142. Industrial Organization with Applications to Agriculture and Natural Resources. (4) Three hours of lecture per week. Prerequisites: 100, or Economics 100A or 101A. This course considers the formation, implementation, and impact of public policies affecting agriculture and the environment. Economic approaches to public law and public policy including theoretical and empirical evidence of globalization’s environmental effects. The course also considers the environmental effects of the International Trade Organization’s GATT/WTO and NAFTA. Multi-disciplinary approach examines the actual laws and institutions and the economic theories of globalization, in addition to the empirical evidence of globalization's environmental effects. (F) Karp

140AC. Economics of Race, Agriculture, and the Environment. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1, or one lower division course in a social science, or consent of instructor. This course examines how economic processes explain shifting formations of race and differential experiences among racial groups in U.S. agricultural and environmental systems. It also examines economics of environmental justice and the organizing dynamics of racial differentiation and integration, and uses comparative experience among different racial and ethnic groups as sources of evidence against which economic theories of differentiation and integration can be tested. This course satisfies the American Cultures requirement. (SP) Romm

141. Agricultural and Environmental Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100, or Economics 100A or 101A. This course considers the formation, implementation, and impact of public policies affecting agriculture and the environment. Economic approaches to public law and public policy including theoretical and empirical evidence of globalization’s environmental effects. The course also considers the environmental effects of the International Trade Organization’s GATT/WTO and NAFTA. Multi-disciplinary approach examines the actual laws and institutions and the economic theories of globalization, in addition to the empirical evidence of globalization's environmental effects. (F) Karp

142. Industrial Organization with Applications to Agriculture and Natural Resources. (3) Three hours of lecture per week. Prerequisites: 100, or Economics 100A or 101A. Organization and performance of agricultural and resource market economies of firms within those markets, such as price competition, product differentiation, predatory pricing, vertical integration, dealer networks, and advertising. The role of public policy in the market. Case studies include oil cartel OPEC, agricultural cooperatives, vertical integration of food processors, and franchising of fast-food chains. (SP) Villas-Boas

143. Economics of Innovation and Intellectual Property. (3) Three hours of lecture per week. Prerequisites: 100, or Economics 100A or 101A. This course addresses the economics of research and incentives for innovation including intellectual property rights. Topics include the standard modern economic theory of invention; monopoly; property rights; the theory of growth; innovation examples from agriculture, energy, pharmaceuticals, software, and electronics; the roles of the public and private sectors; innovation and market
145. Health and Environmental Economic Policy. (3) Three hours of lecture per week. Prerequisites: Intermediate microeconomics, 100, Economics 100 or 101A, or consent of instructor. This course introduces students to key issues and findings in the field of health and environmental economics. The first half of the course focuses on the theoretical and statistical framework for analyzing new and old instances of market failure in the provision of health and environmental goods. The second half focuses on policy-relevant empirical findings in the field. (F, SP) Anderson

C151. Economic Development. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100, or Economics 100A or 101A. Problems of underdevelopment and poverty, policy issues, and development strategy. Also listed as Economics C171. (F, SP) Staff

152. Advanced Topics in Development and International Trade. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 100, or Economics 100A 101A, or consent of instructor. This course discusses recent efforts to understand behavior and institutions in village economies, with particular attention to the importance of risk. Economic analysis of savings, consumption, insurance, production, trade, welfare distribution and institutions of villages in developing countries. Roughly equal parts of theory, evidence, and policy. (SP)

153. Population, Environment, and Development. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Intermediate microeconomic theory or consent of instructor. This course takes an interdisciplinary approach to the complex interactions between population, environment, and economic development, including the leading theories for understanding these interactions. The origins and history of current debates are discussed, as well as some of the major issues facing these debates, such as immigration, international trade, family planning, policies, and concerns over the global commons. Specific natural resources and services like fresh water, food supply, and forest cover are analyzed as case studies. Policy options for sustainable development are discussed. (SP) Zilberman

154. Economics of Poverty and Technology. (3) Three hours of lecture per week. Prerequisites: Intermediate microeconomics. Introduction to the economic framework underlying the analysis of rural poverty in developing countries. Analyzes the path of technology development from innovation and design to the adoption and use of technology in rural economies. Prerequisites: 100, or Economics 100A 101A: 101 recommended. The roots of environmental and resource economics. Theories of land and resource rent. Models of optimal use of renewable and nonrenewable resources with applications to energy and timber. Balancing environmental and extractive values. Resources, growth, and sustainability. Special topic: the problem of global climate change. (F)

161. Advanced Topics in Environmental and Resource Economics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100, or Economics 100A or 101A: 101 recommended. The roots of environmental and resource economics. Theories of land and resource rent. Models of optimal use of renewable and nonrenewable resources with applications to energy and timber. Balancing environmental and extractive values. Resources, growth, and sustainability. Special topic: the problem of global climate change. (F)

162. Economics of Water Resources. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 100, or Economics 100A or 101A: 101 recommended. Urban demand for water; water supply and economic growth; water utility economics; irrigation demand; large water projects; economic impacts of surface and groundwater resources, economic impacts of salinity and drainage; economics of groundwater management. (SP)

C175. The Economics of Climate Change. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: International and Area Studies 106, 107, or equivalent. This course will start with a brief introduction and evaluation of the scientific aspects behind climate change. Economic models will be developed to analyze the impacts of climate change and provide and critique existing and proposed policy tools. Specific topics studied are impacts on water resources and agriculture, economic evaluation of impacts, and cost of greenhouse gases, benefit cost analysis, international treaty formation, discounting, uncertainty, irreversibility, and extreme events. Also listed as International and Area Studies C175. (F, SP) Aupperle, Fisher.

C180. Ecological Economics in Historical Context. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 100A or equivalent. Economists through history have explored ecological and environmental interactions, physical limits to growth, what constitutes the good life, and how economic justice can be assured. Yet economists continue to use measures and models that simplify these issues and promote bad outcomes. Ecological economics responds to this tension between the desire for simplicity and the multiple perspectives needed to understand complexity in order to move toward sustainable, fulfilling, just economies. Also listed as Energy and Resources Group C180. (SP) Norgaard

C181. International Trade. (4) Students will receive no credit for C181 after taking undergraduate Business Administration 181. Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A, 100B, or 101A-101B. The theory of international trade and national protection. This course is equivalent to UGBA 118; students will not receive credit for both courses. Also listed as Economics C181. (F, SP) Staff

195. Senior Thesis. (4) Course may be repeated for credit. Individual meetings and open enrollment. Prerequisites: Senior standing in Environmental Economics and Policy and consent of instructor. Writing of a thesis under the direction of member(s) of the faculty. Subject must be approved by faculty sponsor. (F, SP)

H196. Honors Research. (4) Course may be repeated for credit. Individual research projects involving faculty supervision. Prerequisites: Upper division standing. Eligibility restrictions related to GPA and unit accumulation. Open only to Environmental Economics and Policy majors in the College of Natural Resources. Supervised independent honors research specific to aspects of environmental economics and policy, followed by a oral presentation and a written report. (F, SP)

197. Field Study in Environmental Economics and Policy. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Independent study. Minimum of three hours of work per week. Course must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Supervised experience in off-campus organizations relevant to specific aspects of environmental economics and policy. Open only to students with faculty sponsor and written reports required. (F, SP)

198. Directed Group Studies for Advanced Undergraduates. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Meetings with faculty sponsor and written reports required. (F, SP)

214. New Econometric and Statistical Techniques. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 201A-201B or consent of instructor. Theory and application of new and emerging approaches to estimation and inference. Bayesian, maximum entropy, and other advanced techniques. (F)

219A-219B. Econometric Project Workshop. (2,2) Two hours of seminar per week. Prerequisites: 210, 211, and 212 or consent of instructor. Techniques for preparing econometric studies, including finding data sources, reporting the results of a study, and standards for placing research questions with existing literature. With faculty guidance, students prepare approved projects.

232. Empirical International Trade and Investment. (2) Two hours of lecture per week for eight weeks. Prerequisites: Consent of instructor. Empirical aspects of international trade, foreign investment, and the environment. Emphasis is placed on testing various trade models. Topics include: testing trade models (HO, Ricardo, Specific Sector); gravity models; linkages between openness and growth; trade orientation and firm performance; pattern of trade; trade and the environment; labor markets and trade. New topics in international trade with empirical applications, such as trade models with heterogeneous firms, outsourcing, and foreign investment. (SP) (F) (R)

239. Markets and Trade Workshop. (1) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Issues in international trade and related to poverty, macroeconomic policy, and environmental factors. (F) (S) (SP)

240. Microeconomics of Development. (3) Three hours of lecture per week. Prerequisites: 211 or consent of instructor. Production versus predatory government behavior, rent seeking, social waste, and their trade-offs with the provision of growth-promoting public goods. Three failure types are distinguished: market failure, government failure, and regulatory failure. Methods of empirical analysis and their impact on the market and the environment; water resources; pest control; biotechnology; and optimal control over space and time. (F) (Zilberman)

241. Economics and Policy of Production, Technology and Risk in Agricultural and Natural Resources. (3) Three hours of lecture per week. Prerequisites: 201 and 202, or Economics 201A-201B, or 201C-201D, or 242. Course covers alternative models of production, resource and environmental risk management; family production function; adoption and diffusion; innovation and intellectual property rights; and the interaction of economic policies and their impact on production and the environment; water resources; pest control; biotechnology; and optimal control over space and time. (F) (Zilberman)

242. Quantitative Policy Analysis. (3) Three hours of lecture per week. Prerequisites: 211 or consent of instructor. Production versus predatory government behavior, rent seeking, social waste, and their trade-offs with the provision of growth-promoting public goods. Three failure types are distinguished: market failure, government failure, and regulatory failure. Methods of empirical analysis and their impact on the market and the environment; water resources; pest control; biotechnology; and optimal control over space and time. (F) (Zilberman)

249. Agricultural, Food, and Resource Policy Workshop. (1) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Presentation and criticism of ongoing research by faculty, staff, and students. Not necessarily offered every semester. (F,SP)

251. Microeconomics of Development. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Theoretical and empirical analyses of poverty in developing countries. Household and consumption behavior, and contract and institutions in the context of developing countries. Also listed as Economics C270A. (F) (Sadoulet)

252. Sectoral and Regional Planning in Economic Development. (3) Three hours of lecture per week. Prerequisites: 202 and agreement of instructor. Analysis of policy solutions in agricultural development using sectoral and regional models of growth and development. (SP)

253. International Economic Development Policy. (3) Three hours of lecture per week. Prerequisites: Minimum one semester graduate-level microeconomic theory. Review of statistics or consent of instructor. This course emphasizes the development and application of policy solutions to developing-world problems related to poverty, macroeconomic policy, and environmental sustainability. Methods of statistical, economic, and policy analysis are applied to a series of case studies. The course is designed to develop practical professional skills for application in the international arena. Also listed as Public Policy C253. (F) (De Janvry, Sadoulet, Zilberman)

259. Natural Resource Economics Workshop. (1) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Presentation and criticism of ongoing research by faculty, staff, and students. Not necessarily offered every semester. (F,SP)

260. Non-market Valuation. (3) Three hours of lecture per week. Prerequisites: Ph.D.-level economic theory or consent of instructor. The economic concept of value; historical evolution of market and non-market valuation; demand and supply; alternative valuation methods: single-site demand, multi-site demand, corner solution models, and valuation of quality changes; averting behavior; the hedonic method; contingent valuation; other stated preference methods: ranking, choice, conjoint analysis; the values of life and safety; sampling and questionnaire design for valuation surveys. (SP) (Hanneman)

261. Environmental and Resource Economics. (3) Three hours of lecture per week. Prerequisites: Ph.D.-level economic theory or consent of instructor. Theoretical and empirical aspects of economic valuation and valuation of quality changes; averting behavior; the hedonic method; contingent valuation; other stated preference methods: ranking, choice, conjoint analysis; the values of life and safety; sampling and questionnaire design for valuation surveys. (SP) (Hanneman)

262. Dynamic Methods in Environmental and Resource Economics. (3) Three hours of lecture per week. Prerequisites: Ph.D.-level economic theory or consent of instructor. This course studies methods of analysis and optimal control of dynamic systems, emphasizing applications in environmental and natural resource economics. Continuous-time deterministic models are studied using phase plane analysis, the calculus of variations, the Maximum Principle, and dynamic programming. Numerical methods are applied to discrete time stochastic and deterministic dynamic models. (F) (Karp)

269. Professional Preparation: Teaching of Environmental Economics and Policy. (1-6) Course may be repeated for credit. Individual study is acceptable to the member here of the staff. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. This course studies methods of analysis and optimal control of dynamic systems, emphasizing applications in environmental and natural resource economics. Continuous-time deterministic models are studied using phase plane analysis, the calculus of variations, the Maximum Principle, and dynamic programming. Numerical methods are applied to discrete time stochastic and deterministic dynamic models. (F) (Karp)
media studies, ethnic studies, and urban and regional studies.

Prerequisites to the Major. In order to declare the major, students must complete two of the four lower division requirements before their Petition to Declare a Major is submitted, with no more than two courses from any one department.

Lower Division Requirements. A minimum grade of C is required in all lower division courses taken for the major. Lower division requirements consist of American Studies 10, Introduction to American Studies (4 units), plus three courses from the following, with no more than two courses from any one department.

Note: This list is subject to annual review and revision. New courses, particularly those that fulfill the American Cultures requirement, can be substituted for those on the list with adviser approval. Transfer students should check with an AS adviser to have their lower division courses approved to fulfill this requirement.

Lower Division Course List:

African American Studies

Asian American Studies

Environmental Studies

Ethnic Studies

Lower Division Courses

10. Introduction to American Studies. (4) Three to four hours of lecture and zero to one hour of discussion per week. Formerly Undergraduate Interdisciplinary Studies 10. American culture and cultural change in relation to the multicultural basis of American society and emphasis on the need for multiple methods of analysis. The course will consistently draw on the arts, material culture, and various fields of social science. Involving cultural production and meaning, these areas include literature, film, history, architecture, history of art, religion, music, engineering, environmental studies, anthropology, politics, economics, law, and medicine. This course may be repeated for credit as topic varies depending on available funding. Some versions of this course require four in-class contact hours because of the extensive use of media. (F,SP) Staff

10AC. Introduction to American Studies. (4) Students will receive no credit for 10AC after taking 10 or Undergraduate and Interdisciplinary Studies 10. Three hours of lecture and one hour of discussion per week. American culture and cultural change, with attention to the multicultural basis of American society and emphasis on the need for multiple methods of analysis. The course will consistently draw on the arts, material culture, and various fields of social science. Involving cultural production and meaning, these areas include literature, film, history, architecture, history of art, religion, music, engineering, environmental studies, anthropology, politics, economics, law, and medicine. This course satisfies the American Cultures requirement. (F,SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester, depending on student enrollment. (F,SP) Staff

39. Freshman Sophomore Seminar. Course may be repeated for credit as topic varies. Two to four hours of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments, and topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 15. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in all departments. Some versions of this course need four in-class contact hours because of the extensive use of media. (F,SP) Staff

98. Directed Group Study. (1-4) Course may be repeated for credit as topic varies. Group meetings will vary from semester to semester and from topic to topic. Course may be repeated for credit as topic varies depending on available funding. Some versions of this course require four in-class contact hours because of the extensive use of media. (F,SP) Staff

101A. American U.S. Cultures in Time. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course examines how U.S. cultures are constructed, reinforced, and transformed. Three hours of lecture per week. This course may be repeated for credit as topic varies depending on available funding. Some versions of this course require four in-class contact hours because of the extensive use of media. (F,SP) Staff

101AC. American U.S. Cultures in Time. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course examines how U.S. cultures are constructed, reinforced, and transformed. This course may be repeated for credit as topic varies depending on available funding. Some versions of this course require four in-class contact hours because of the extensive use of media. (F,SP) Staff

102. Undergraduate U.S. Cultures in Place. (4) Course may be repeated for credit as topic varies. Three hours of lecture and two hours of discussion per week. This course examines how U.S. cultures are constructed, reinforced, and transformed. Three hours of lecture per week. This course may be repeated for credit as topic varies depending on available funding. Some versions of this course require four in-class contact hours because of the extensive use of media. (F,SP) Staff

H110. Honors Seminar: Special Topics in American Studies. (3) Course may be repeated for credit as topic varies. Three to four hours of seminar per week. This course is designed to introduce honors students to an interdisciplinary field and to explore current themes, debates, and research problems in American studies. (F,SP) Staff

C111A. Architecture and Depression. (3) Course may be repeated for credit. Three hours of seminar per week. Topics will vary from semester to semester. The Great Depression and World War II are arguably the two most influential events for the development of the built environment in the 20th century. Not only did they alter the socio-economic and ideological landscape on which architecture and urban planning depend, but they also led to technological innovations and vital debates about the built environment. This course examines the 1930s and 1940s topically, studying the work of the New Deal, corporate responses to the Depression and war, the important connections between architecture and advertising, the role of the Museum of Modern Art in the promotion of Modernism, the concept of the ideal house, and key text, theories, and
projects from the period. Also listed as Architecture C174. (SP) Shanken

C111E. Topics in American Studies. (4) Course may be repeated for credit with different topic and consent of instructor. Three hours of lecture per week. Formerly C136. A course on the intellectual, cultural, historical, and social backgrounds to American litera-

ture. Topics will vary from semester to semester. Students should consult the department’s “Announcement of Course Offerings” well before the start of the semester. Also listed as English C136.

C112A. American Cultural Landscapes, 1600 to 1900. (4) Three hours of lecture and one hour of dis-
cussion per week. Formerly C169A. Introduces ways of reading American history and cultures, as revealed in everyday built surroundings—houses, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations and to speculate for themselves about cultural meaning. Also listed as Environmental Design C169A and Geography C160A. (F) Groth

C112B. American Cultural Landscapes, 1900 to Present. (4) Three hours of lecture and one hour of dis-
cussion per week. Formerly C169B. Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings—houses, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations, and to speculate for themselves about cultural meaning. Also listed as Environmental Design C169B and Geography C168B. (SP) Groth

C112F. The American Forest: Its Ecology, History, and Representation. (4) Three hours of lecture and one hour of discussion per week. Formerly C176. The American forest will be examined in terms of its eco-
yology, history, and representations in paintings, photo-
graphs, and literary essays. This examination seeks to understand the American forest in its scientific and economic parameters, as well as the historic, social, and ideological dimensions which have contributed to the evolution of our present attitudes toward the forest. Also listed as Undergrad Interdisciplinary Studies C176, History of Art C189, and Environment Science, Policy, and Management C191. (F.SP) Lovell, McBride

C132B. Intellectual History of the United States since 1865. (4) Students will receive no credit for C132B after taking History C132B. Three hours of lect-
ure and one hour of discussion per week. This course will focus on new developments in urban, cultural, and political history, focusing on key developments in U.S. thought per week. This course surveys the history of American landscape architecture since 1850 in three major areas: 1) urban parks; 2) regional and
environmental planning; 4) gardens. The course will review the cultural and social contexts which have shaped and informed landscape architecture in the United States since the advent of the public parks movement, as well as the aesthetic precepts, envi-
ronmental practices, and technological innovations of American landscapes. Stu-
dents will complete a midterm, final, and a research assignment. Also listed as Landscape Architecture C171, (SP) Mozingo

C172. Business in Its Historical Environment. (3) Three hours of lecture per week. This course will examine selected aspects of the history of American business. Included will be discussions of the evolu-
tion of the business that shaped and informed landscape architecture in the United States. (3) Also listed as Undergraduate Interdisciplinary Studies C172. (SP) Rosen

C174. Visual Autobiography. (4) Six hours of lec-
ture per week. Prerequisites: Consent of instructor. Since visual and literary studies have historically been seen as separate disciplines, we will use theories from both to study those forms of self-representation that defy disciplinary boundaries, or what we call “visual autobiography.” The course aims to help stu-
dents become conversant with the elements of alpha-
betic literacy (reading and writing) and visual literacy (observing and making) in order to develop a third distinctive textual/visual literacy. Also listed as Visual Studies C185A, Undergraduate Interdisciplinary Studies C135, and English C143V. This course satisfies the American Cultures requirement.

189. Research and Writing in American Studies. (3) Three hours of lecture per week. This course will

case the role of information technology in the digital, commercial, and social realms, with a focus on the deployment of e-government, e-commerce, e-learning, the digital city, telecommut-

ing, virtual communities, internet time, the virtual office, and cyber space. The course will also discuss the role of information technology in the governance and economic development of society. Also listed as African American Studies C134. (F,SP) Laguerre

139AC. Civil Rights and Social Movements in U.S. History. (4) Three hours of lecture and one hour of dis-
cussion per week. Beginning with the onset of World War II, America experienced not a singular, uni-

tary Civil Rights Movement—as is typically portrayed in standard textbook accounts and the collective memory—but rather a variety of social movements. This course explores the history, presenting a top-down (political and legal history), bottom-up (social and cultural history), and race by race and region) view of America’s struggles for racial equality from roughly World War II until the pre-

sent. Also listed as History C139C. This course sat-
ifies the American Cultures requirement. (F,SP)

C152. Native American Literature. (4) Three hours of lecture per week. This course examines the literar-

dy developed by Native Americans. Emphasis will be placed on a multifaceted approach (aesthetic, lin-
guistic, psychological, and cultural) in examin-
ing American Indian literature. Also listed as Native American Studies C152.

C160. International Media. (3) Course may be repeated for credit as topics vary. Three hours of lec-
ture per week. Prerequisites: Mass Communications 10 or consent of instructor. Case studies of the for-
eign mass media. Focus may be on the press and publishing, broadcasting, documentaries, or new media. Possible topics: Pacific Rim press; mass media in China, Israel, and India. Also listed as Interdisciplinary Studies Field Maj C116 and Mass Communications C160.

C171. The American Designed Landscape Since 1850. (3) Three hours of lecture per week. This course surveys the history of American landscape architecture since 1850 in three major areas: 1) urban parks; 2) regional and environmental planning; 4) gardens. The course will review the cultural and social contexts which have shaped and informed landscape architecture in the United States since the advent of the public parks movement, as well as the aesthetic precepts, envi-
ronmental practices, and technological innovations of American landscapes. Stu-
dents will complete a midterm, final, and a research assignment. Also listed as Landscape Architecture C171, (SP) Mozingo

190. Senior Thesis. (4) Individual meeting with thesis adviser. All American Studies majors must satisfy the senior thesis requirement. Three options are available: a) a senior thesis, b) a senior seminar, or c) a thesis seminar. Students may register for a senior thesis with prior approval of the American Studies Committee of the American Studies Committee of the fall semester prior to the start of the semester. Also listed as English C190.

191. Senior Seminar. (4) Four hours of seminar per week. Prerequisites: Declared majors with senior standing. Students will meet in seminar and be required to write individual research papers based on the general themes or issues of the seminar. The par-
ticular themes/issues will be outlined on the Ameri-
can Studies Course List provided each semester by the American Studies office. (F,SP) Staff

H195. Honors Thesis. (4) Three hours of seminar per week. Prerequisites: Senior-standing major in American studies; completion of 101 and 102, 3.51 overall GPA, and 3.65 GPA for classes in the major. This is a required course for students wishing to grad-
uate with honors in American studies. Entails writing a bachelor’s thesis pertaining to the student’s individ-
ual major. The completed thesis will be read by the thesis supervisor and one other faculty member. (F,SP) Staff

198. Directed Group Study for Advanced Under-
graduates. (1-4) Course may be repeated for credit as topic varies. Enrollment is restricted; see the “Intro-
duction to Courses and Curricula” section of this cat-
alog. Must be taken on a passed/not passed basis. Prerequisites: Regulations set by College of Letters and Science. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from semester to semester. Must have completed 60 units in order to be eligible to enroll. (F,SP) Staff

199. Supervised Independent Study and Research for Upper Division Majors. (1-4) Course may be repeated for credit as topic varies. Must be taken on a passed/not passed basis. Direct individual study on special topics approved by an American studies faculty member. Enrollment restrictions apply; see the “Introduction to Courses and Curricula” section of this catalog. (F,SP) Staff

Graduate Courses

250. Research Seminar: Selected Topics. (4) Course may be repeated for credit. Four hours of seminar per week. Prerequisites: Consent of instruc-
tor. A seminar course designed to involve graduate students directly in the interdisciplinary research process. Emphasis on examination and analysis of primary sources, methodology, and the develop-
ment of theoretical constructs. A major paper is required. (F,SP)

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
The Graduate Program

The Ancient History and Mediterranean Archaeology program is interdisciplinary and administers by faculty drawn from different departments. Both M.A. and Ph.D. degrees are offered. Fields of emphasis include Classical, Near Eastern, ancient Egyptian, and Late Antique history, religion, art and archaeology; epigraphy; numismatics; and ancient law. Candidates for degrees will offer a combination of three of these fields or similar fields, one as a major subject, two as minor subjects. The program is open to students with the B.A. in a relevant area who have completed at least one year of undergraduate study in ancient history, art, or archaeology. Applicant's preparation should include advanced work in at least one ancient language.

M.A. Requirements. The M.A by thesis requires 20 semester units of coursework and a thesis. The M.A. by examination requires 24 semester units of coursework and a comprehensive examination.

Ph.D. Requirements. There are no specific course requirements. It is expected that all students will take at least one AHMA interdisciplinary seminar during their graduate years. Students should also take considerate seminar work in at least two of the departments represented in the program and obtain some practical experience in each department. Candidates must pass examinations in two modern languages and two ancient languages appropriate to the field of study. They are then eligible for the Ph.D. qualifying examinations, both written and oral, which test competence in the major and minor subjects. Upon successful completion of these requirements and when advanced to candidacy, the student proceeds to research and writing of a dissertation under the guidance of a three-person committee. The dissertation must be approved by the committee and be in a final form before the student is recommended for the Ph.D. degree.

For further information, inquiries should be addressed to the Graduate Group in Ancient History and Mediterranean Archaeology.

Graduate Courses

210. Ancient History and Mediterranean Archaeology Interdisciplinary Seminar. (2,4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing. Team-taught by faculty from two different departments. The purpose is not to expose students to a discipline other than their own but to engage them directly in the application of that discipline to their own research interests. The topic and instructors will vary from year to year. Staff

299. Special Study. (1-4) Course may be repeated for credit. Four hours of independent study per week per unit. Includes: Independent study; Prerequisites: Graduate standing or consent of instructor. Topics and instructors will vary from year to year. Special individual study for qualified graduate students. Individual study and research in ancient history, religion, archaeology, Bronze Age Aegean, ancient Greek domestic architecture, ancient religion, and mythology.
Assistant Professor
Sabrina Agarwal, Ph.D. University of Toronto.
Biological and evolutionary anthropology, osteology and osteopathology, paleopathology

Affiliated Faculty
Genevieve Ames, Ph.D. Medical anthropology, occupational culture and health, substance abuse prevention (Public Health)
Phillepe Bourgois, Ph.D. Medical anthropology
Susan Evin-Tripp, Ph.D. Sociolinguisitcs, child language (Psychology)
Mia Fuller, Ph.D. Anthropology of colonialism, fascism (Italian Studies)
Jennifer Johnson-Hanks, Ph.D. Social organization, African studies (Sociology)
Michel Laguerre, Ph.D. Contemporary social theory, transnational scenarios (African American Studies)
Jean Lave, Ph.D. Anthropology of science and the sociology of culture (Education)
Claire Martin-Biggers, Ph.D. 
Laurence Michalak, Ph.D.
David Szanton, Ph.D.
Laurence Michalak, Ph.D.
Jean Lave, Ph.D.

Affiliated Researchers
Ira Dumke, program director, visual anthropology (Phoebe A. Hearst Museum of Anthropology)
Susan Heasly V Doyle, Ph.D. European prehistory, lithic analysis (Institute of Slavic, East European, and Eurasian Studies)

Medical Anthropology Ph.D. Program Office:
232 Kroeber Hall, (510) 642-3391

Affiliated Faculty
Stefania Pandolfo, Ph.D.
Lawrence Cohen, Ph.D.
Associate Professors
Nancy Scheper-Hughes, Ph.D.
Charles L. Briggs, Ph.D.
Stanley H. Brandes, Ph.D.

Department Overview
The Department of Anthropology offers students the opportunity to study humankind from the broadest historical and geographical perspective. Courses in the department offer knowledge of social and cultural aspects of behavior, as well as the physical nature of humans. Lower division courses are intended to give a general understanding of anthropology, prehistory, and the nature of human cultures, while upper division courses elaborate particular themes.

The anthropology major is designed to serve two purposes: to provide a general education in anthropology for students who are pursuing a liberal arts education, and to provide preparation for graduate work for students who wish to become professional anthropologists. Students who do not intend to do graduate work in anthropology may plan their course work with considerable freedom, so long as they fulfill the requirements of the major listed below. Students who plan to go on to graduate study, either at Berkeley or at another institution, should select a combination of courses to form a unified plan of study that meets special intellectual interests.

The collections and research facilities of the Phoebe A. Hearst Museum of Anthropology are available for study in archaeology, ethnography, physical anthropology, and related subjects by graduate and undergraduate students, and by visiting scholars; the museum’s exhibition hall is used for four instructional and educational purposes, particularly in connection with class work. Those interested may address the Director, 103 Kroeber Hall. For further information on the Hearst Museum, see the “Index” in this catalog.

The Anthropology Library, 230 Kroeber Hall, is part of the campus library system. It contains nearly 70,000 bound volumes and receives 965 current serial titles. The Anthropology Library houses a large reading room and facilities for reading microfilm. It is open to all members of the University but serves primarily the faculty and students of the Department of Anthropology.

Students seeking information on the Undergraduate Program may inquire at 209 Kroeber Hall. Students seeking information on the Graduate Program may inquire at 205 Kroeber Hall.

The Major
Lower Division Prerequisites (3 total): Anthropology 1, 2 or 2AC, and 3 or 3AC. The three lower division prerequisites may be taken in any order.

Upper Division Requirements (9 total):
• Anthropology 114: History of Anthropological Thought;
• One course in biological anthropology (choose from Anthropology 100-112, 127A, 127B);
• One course in archaeology (choose from Anthropology 121-136J, 174AC);
• One course in social/cultural anthropology (choose from Anthropology 115-119, 138-188A);
• Five anthropology electives (choose five from Anthropology 100-196).

The nine required upper division courses listed above must include at least one Area course and one Method course:

Area courses: 121-125B, 128A, 147C, 170-188, 189A

Courses taken to satisfy the Area and Method requirement also (simultaneously satisfy one of the nine required courses. For example, taking Anthropology 189A will satisfy both the Area requirement and one of the five electives; Anthropology 132A would satisfy both the Method and the Archaeology Core. No courses can be applied to Area and Method.

All courses taken to satisfy the major requirements must be taken on a letter-grade basis.

Students wishing to pursue a Ph.D. in anthropology should consider tracking their five elective requirements. (This concentration would not be noted on the transcript or diploma.) Faculty advisers are available to meet with students who have questions on how best to prepare for graduate work in anthropology. See the undergraduate adviser in 209 Kroeber Hall for a referral to one of the faculty graduate advisers.

A minimum GPA of 2.0 must be maintained in the lower and upper division anthropology courses.

Lower division courses may be completed in any order. Start with the course that seems most interesting to you. Note: Anthropology 1 is offered once a year (either fall or spring) and during summer. Anthropology 2 and 3 are offered during both fall and spring of each year and usually during the summer.

Anthropology 114 is only offered in the spring and should be taken no later than the spring of junior year.

Study Abroad. A maximum of four courses taken at other institutions, including those of the Education Abroad Office of the University of California, may be used to meet upper-major division requirement. Submit a Substitution petition and a detailed syllabus for each class you’d like evaluated to the undergraduate adviser in 206 Kroeber Hall.

Note: A course description alone is never sufficient for evaluation; a syllabus is always required for course evaluation.

Honors Program. The Honors Program in anthropology is a independently pursued course of research undertaken by qualified students under the mentorship of a faculty thesis adviser. A GPA of 3.3 overall, and 3.5 in the major in courses completed at Berkeley is required to qualify for the program. It is a year-long senior program which may begin in either the fall or spring semester. The program requires the sponsorship of an anthropology professor as thesis adviser and a second reader. The honors courses, H195A and H195B, may also count as elective requirements for the major. Applications and more information are available at 205 Kroeber Hall.

The Minor
Lower Division. Choose two from Anthropology 1, 2/2AC, or 3/3AC.

Upper Division. Any five anthropology courses. All courses must be taken for a letter grade, and the student must achieve a C average or better in all anthropology coursework. At least four of the five courses must be completed at Berkeley. For more information about the minor, please contact the undergraduate adviser in 205 Kroeber Hall.

Preparation for Graduate Study
Admission to graduate studies at Berkeley does not presuppose a B.A. in anthropology. The graduate program is oriented toward the doctorate, and only candidates for the Ph.D. will be accepted. The M.A. degree is awarded in the course of study leading to the doctorate.

Because of the number of students who wish advanced training, only a small percentage of applicants can be accepted. Applications are considered only once a year for the following fall semester. The deadline for application is December 15.

Graduate Programs
Anthropology Ph.D. Program
The Department of Anthropology offers a Ph.D. in anthropology, with the subdisciplines of social-cultural anthropology or archaeology. The Ph.D. in anthropology is concerned with diverse analytic and substantive problems in the contemporary world and includes research sites across the United States and around the world. For example, the Ph.D. in anthropology might focus on globalization and political economy; gender and feminist analysis in archaeology and social-cultural anthropology; genomics and the anthropology of science and reason; folklore theory; ethn-archaeology; linguistic anthropology; paleo-botany; the anthropologies of tourism, food, energy, space, and the body; sexuality and difference; aging and the life course; cultural politics of identity, space, and technology; and agrarian micropolitics; coastal archaeology; urban anthropology; and psychoanalytic anthropology.

The program for the Ph.D. degree normally takes six years and is divided into three steps, as follows:

Step I. The students begin to narrow their interests to particular topical and geographical areas of specialization, a process that normally takes one year.

Step II. Students attend seminars, prepare three field statements in their specializations, and take a language requirement, and prepare for their Ph.D. oral qualifying examination. This step lasts one to two years. With the successful passing of the orals, students are advanced to candidacy for the Ph.D. degree.

Step III. Students undertake research for the Ph.D. dissertation under a three-person committee in charge of their research and dissertation. Students do original field, laboratory, or library research, which generally takes a minimum of one year. The students then write the dissertation based on the results of this research. On completion of the research and approval of the dissertation by the committee, the students are awarded the doctorate.
For further information, please address correspondence to the Graduate Adviser, Department of Anthropology, University of California, Berkeley; Berkeley, CA 94720.

Medical Anthropology Ph.D. Program

General Information. The Department of Anthropology at the University of California, Berkeley, and the Graduate Group in Anthropology at the University of California at San Francisco, currently offer a joint Ph.D. in medical anthropology. Students may apply to enter the program through either the Berkeley office or the San Francisco office but not to both. The point of entry determines the student's home base during the program. Financial aid, primary advising, and other routine services are provided by the campus through which the student enters the program. All students, however, benefit by taking required coursework on both campuses and by the participation of the faculty on both sides of the program on all qualifying examinations and on the doctoral dissertation committees. The degree is the same and bears the name of both campuses.

Medical Anthropology. Medical anthropology entails the exploration of humans as simultaneously physical and symbolic beings in both contemporary and evolutionary contexts. As such, medical anthropology participates in anthropology as a whole, and draws to its theory and practice from sociocultural, psychological, biological, biomedical, symbolic, and linguistic anthropology. It is concerned with questions of both theoretical and applied significance and with research that is of relevance to the social sciences, as well as to medicine and the biological sciences. Courses in bioevolutionary dimensions of disease are accompanied by seminars that explore pain, suffering, madness, and other human afflictions as a social language speaking to the critically sensitive or parallel human culture and social institutions. (F,SP)

The minimum requirement for admission to the Berkeley doctoral program in anthropology and in medical anthropology is a B.A. The UCSF program in medical anthropology is designed to provide graduate students with a strong foundation in the relevant discipline. The program requires at least four years of full-time study, including a one-year period of intensive dissertation research and one to two years of writing the dissertation. The Master of Arts in Folklore The folklore program is designed to provide graduate students with a competent knowledge of both the materials of folklore and the various methods of studying these materials.

For information, see the “Folklore” section of this catalog.

Lower Division Courses
1. Introduction to Biological Anthropology. (4) Three hours of lecture and one hour of discussion per week. An introduction to human evolution. Physical and behavioral adaptations of humans and their prehistoric and living relatives. Issues in evolutionary theory, molecular evolution, primate behavior, interpretation of fossils. Prehistoric activities, racial differences, genetic components of behavior are defined and evaluated. (F,SP)
2. Introduction to Archaeology. (4) Students will receive no credit for 2 after taking 2AC but may receive credit for 2AC after taking 2. Two hours of lecture and one hour of discussion per week. Prehistory and cultural growth. (F,SP)
2AC. Introduction to Archaeology. (4) Students will receive no credit for 2AC after taking 2 but may receive credit for 2AC after taking 2AC. Three hours of lecture and one hour of discussion per week. Prehistory and cultural growth. Introduction to the methods, goals, and theoretical concepts of archaeology with attention to the impact of archaeological research on the development of the discipline. Satisfies the science or science-related requirements of the American Cultures requirement. (SP, F)
2L. Introduction to Archaeology through Multimedia Authoring (3) One topic with a faculty member, one hour of seminar/lab per week. The structure and dynamics of human culture and social institutions. (F,SP)
3AC. Introduction to Social/Cultural Anthropology (American Cultures), (4) Students will receive no credit for 3AC after taking 3AC but may receive credit for 3AC after taking 3AC. Three hours of lecture and one hour of discussion per week. The structure and dynamics of human culture and social institutions. (F,SP)
3. Introduction to Social and Cultural Anthropology. (4) Students will receive no credit for 3 after taking 3AC but may receive credit for 3AC after taking 3AC. Two hours of seminar per week. An introduction to the theoretical concepts of archaeology with attention to the impact of archaeological research on the development of the discipline. Satisfies the science or science-related requirements of the American Cultures requirement. (SP, F)
3AC. Introduction to Social/Cultural Anthropology (American Cultures), (4) Students will receive no credit for 3AC after taking 3AC but may receive credit for 3AC after taking 3AC. Three hours of lecture and one hour of discussion per week. The structure and dynamics of human culture and social institutions. (F,SP)

Upper Division Courses
4. Reading and Composition in Anthropology. (4) Three hours of lecture per week. Reading and composition courses based on the anthropological literature. These courses provide an introduction to issues distinctive of anthropological texts and introduce students to distinctive forms of anthropological writing, such as ethnography and anthropological history. Readings will be chosen from a variety of texts by authors whose works span the discipline, from bioanthropology to archaeology and sociocultural anthropology. Topics may vary from semester to semester. Enrollment limited to 15 freshmen.

24. Freshman Seminar. (1) Course may be repeated for credit with different topic and different instructor. Fifteen hours of seminar per semester. Sections 1-10 to be graded on a passed/not passed basis. Sections 11-20 to be graded on a letter-grade basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small setting. Freshman seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

39. Freshman/Sophomore Seminar. (2-4) Course may be repeated for credit with different topics. One to two hours of tutorial (or fieldwork) per week. Must be taken on a passed/not passed basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topics vary. One to two hours of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At the time of entry, students must be sophomores. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three to 12 hours of group study (or tutorial or fieldwork) per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; freshmen or sophomore status. Organized group study on topics selected by lower division students under the direction of a member of the Anthropology department faculty.

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three to 12 hours of group study (or tutorial or fieldwork) per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; freshmen or sophomores only. Individual research by lower division students. (F,SP)

C100. Human Paleontology. (5) Three hours of lecture and three hours of laboratory per week. Prerequisites: 1, Biology 1A-1B. Origin and relationships of the extinct forms of mankind. Also listed as Integrative Biology C185. Offered alternate years. (SP) White

101. Genetic Anthropology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1, Human variation in both a racial and non-racial context; basic genetics (both molecular and population-level); theories of racial origins, selective bases of human variation. (F,SP)

102L. Physical Anthropology Laboratory. (1-3) Six hours of laboratory per week. Prerequisites: 100 or 110 (or other approved prerequisite). Three to six hours of laboratory per week. Applied studies in skeletal reconstruction and the interpretation of skeletal remains. Laboratory based on anthropological populations, emphasizing methodology and analysis of human populations from archaeological and paleontological contexts, taphonomy, and paleopathology. Also listed as Integrative Biology C142. Offered alternate years. (SP) White
105. Primate Evolution. (4) Three hours of lecture per week. Prerequisites: 1 recommended. A consideration of the major groups of primates with an emphasis on the evolution of behavior. (F,SP)

111. Evolution of Human Behavior. (4) Three hours of lecture and one hour of discussion per week. Formerly 111A. This course will ask what extent human behavior in its various individual, group, social, and cultural dimensions can be understood using the relatively small number of basic principles provided by our common evolution.

112. Special Topics in Biological Anthropology. (Course may be repeated for credit. Three hours of lecture per week and one or more hours of laboratory may be required based on topic. Prerequisites: Anthropology 1 or consent of instructor. Varying topics covering current discoveries, research, theories, fieldwork, etc., in biological anthropology. Topics vary with instructor. (F,SP)

114. History of Anthropological Thought. (4) Three hours of lecture and one hour of discussion per week. This course will present a history of anthropological thought from the mid-19th century to the present and will draw upon the major subdisciplines of anthropology. It will focus both upon the intellectual and institutional development of anthropology and the relationships between these and other disciplines outside anthropology. (F)

115. Introduction to Medical Anthropology. (4) Three hours of lecture and one hour of discussion per week. Cultural, psychological, and biological aspects of physical illness, symptoms, and treatment of illness. Comparative study of medical systems, practitioners, and patients. (F,SP)

119. Special Topics in Medical Anthropology. (Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Upper division status and consent of instructor. Special topics in cultural, biomedical, and applied approaches to medical anthropology. (F,SP)

121. Historical Archaeology. Archaeology of the period from the first European settlement in America, Australasia, South Africa, etc. The following series of 121, Historical Archaeology sequence courses may be taken in any order.

121AC. American Material Culture. (4) Students will receive no credit for 121AC after taking 121A. Three hours of lecture per week. Prerequisites: 2 or consent of instructor. Patterns in material culture as it reflects behavioral and psychological aspects of American culture since the 17th century. Topics include architecture, domestic artifacts, mortuary art, foodways, and clothing. This course satisfies the American Cultures requirement. (F,SP)

121C. Historical Artifact Identification and Analysis. (4) Two hours of lecture and three hours of laboratory per week. Prerequisites: 121A or 121B recommended and consent of instructor. Learn to work with historical artifacts from the stage of recovery through the stages of analysis and interpretation. The focus is on the analysis of materials (i.e., ceramic, glass, metal, bone, shell artifacts) recovered from historic sites. Skills acquired include how to identify, date, record, illustrate, photograph, catalog, and interpret historical archaeological materials through a combination of lectures, lab exercises, and a research paper. (F,SP)

122. Archaeology of the Americas. Three hours of lecture per week. Prerequisites: 2. A group of courses that examine the native societies and cultures of the Americas in the past, as known from a variety of sources used by archaeologists, including study of materials, documents, visual culture, and the use of ethnographic accounts. (F,SP)

122A. Archaeology of North America. (4) Prerequisites: 2. Formerly 122. Prehistory of North American Indians; prehistoric culture areas; relations with historic Indians. (F,SP)

122C. Archaeology of Central America. (4) A survey of what archaeology can tell us about the pre-Columbian cultures of Central America: the Olmec, Maya, Aztec, and their neighbors. (F,SP)

122D. World of Ancient Maya. (4) A survey of the history of development of Maya society and culture in Central America prior to European contact in the 16th century AD. (F,SP)

122E. Andean Archaeology: People of the Andes. (4) This course covers the archaeology and history of the indigenous societies of the Andean region of South America. The lectures and readings emphasize major problems in the Andes, and the relationship between the political, economic, and religious systems of the later empires and earlier political structures and social processes, are also emphasized. (F,SP)

122F. California Archaeology. (4) Prehistory of California Indians; selected archaeological sites and current issues in interpretations. (F,SP)

122G. Archaeology of the American Southwest. (4) This course will outline the development of native cultures in the American Southwest from Paleo-Indian times (ca. 11,500 BC) through early European contact (ca. AD 1540). Topics to be covered include the cultural evolution in the greater environment, early foraging culture, the development of agriculture and village life, the emergence and decline of regional alliances, abandonment, and reorganization, integration in social organization, external relations and trade. The course is designed as an advanced upper division seminar for students majoring in anthropology with an emphasis in archaeology. Can be taught as a discussion learning course with another university. (F,SP)

123. Old World Cultures. Three hours of lecture per week. Prerequisites: 2. A variety of courses that consider the peoples and past cultures and societies of the Old World, through the study of archaeology, ethnography, and to some extent, history. Topics to be covered may vary by semester; students may take any or all of the following in any sequence.

123A. Stone Age Archaeology. (4) Prerequisites: 2. Overview of stone age cultures and development. Selected topics geographic areas of paleolithic research. (F,SP)

123B. Archaeology of Africa. (4) Prerequisites: 2. This course provides an overview of the archaeological history of the African continent. Through case studies, it will explore Africa beginning with human evolution and the spread of early hunter-gatherer cultures, the rise of more complex political forms, and the role of cultural diffusion in the development of major African civilizations. (F,SP)

123C. Archaeology of Europe. (4) Prerequisites: 2. Formerly 127. Selected topics and research problems in the archaeology of the Paleolithic and/or post-Paleolithic of Europe. (F,SP)

124. Pacific Cultures. Three hours of lecture per week. Prerequisites: 2. A variety of courses that consider the peoples and past cultures and societies of Oceania and the Pacific, through the study of archaeology, ethnography, ethnohistory, and other relevant fields. No specific sequence of courses; students may take any or all of the following in any sequence. (F,SP)

124A. Archaeology of the South Pacific. (4) Selected topics and research problems in the archaeology of the southern Pacific from prehistory through to the establishment of complex chiefdoms in many locales. Stress on current issues and interpretations. (F,SP)

124AC. Hawaiian Ethnohistory. (4) Three hours of lecture per week. Prerequisites: 3 or equivalent or consent of instructor. An examination of the recent foundations of the 20th-century multicultural society of Hawaii, during the period 1778-1900, explored through an explicitly anthropological perspective. The following ethnic groups are emphasized: Native Hawaiians, British-American whites, Chinese, and Japanese. This course satisfies the American Cultures requirement. (F,SP)

125. Asian Archaeology. Three hours of lecture per week. Courses focus on past Asian peoples, culture, and societies through the study of archaeology, ethnography, and other relevant fields. These courses meet the area requirement and may be taken in any sequence. (F,SP)

C125A. Archaeology of East Asia. (4) Three hours of lecture per week. Prehistoric and protohistoric archaeology in China, Japan, and Korea. Also listed as Japanese C175S. (F,SP)

C125B. Archaeology and Japanese Identities. (4) Students will receive no credit for C125B after taking C125B. Three hours of lecture per week. Formerly Anthropology 125B. Course explores stereotypes of traditional Japanese people through archaeological analysis. Particular emphasis will be placed on changing lifeways of past residents of the Japanese islands, including commoners, samurai, and nobles. Consideration will be given to the implications of these archaeological studies for our understanding of Japanese identities. Also listed as Japanese C176S. (F,SP)

127. Bioarchaeology. Two hours of lecture and four hours of laboratory per week. Prerequisites: 1, Biology 1B. A variety of courses related to bioarchaeology. (F,SP)

127A. Introduction to Skeletal Biology and Bioarchaeology. (4) Students will receive no credit for 127A after taking either C103 or Integrative Biology C142. An introduction to skeletal biology and anatomy to understand how skeletal remains can be used in reconstructing patterns of growth, development, and biocultural evolution in past populations, emphasizing a problem-based approach to bioarchaeological questions. (F,SP)

127B. Reconstruction of Life in Bioarchaeology. (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: 1, Biology 1B. The prerequisites: 2 recommended. Special topics in archaeology which meet the area requirement for the anthropology major. (F,SP)

128. Special Topics in Archaeology. (Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 2. Current topics in method and theory of archaeological research, varying with instructor. (F,SP)

128A. Special Topics in Archaeology/Area. (Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 2 recommended. Special topics in archaeology which meet the area requirement for the anthropology major. (F,SP)

128M. Special Topics in Archaeology/Method. (Course may be repeated for credit. Three hours of lecture and three hours of laboratory per week. Prerequisites: 2. Current topics in method and theory of archaeological research, focusing on specific cultures or regions. Courses may be taken in any sequence. (F,SP)

129. Prehistoric Art. (4) Prerequisites: 2. A variety of courses related to art in non-literate societies and on archaeology to explore a range of prehistoric arts in cultural contexts; e.g., rock art, ice Age Arts; prehistoric ceramics. Uses illustrative materials from the Heard Museum. (F,SP)

129C. Archaeology of Hunter-Gatherers. (4) Course will provide an overview of hunter-gatherer archaeology, focusing on the history of hunter-gatherer archaeology in North America and Britain; long-term changes in hunter-gatherer subsistence, mortuary and ceremonial practices and crafts/trade; social archaeology of hunter-gatherers including studies of gender, cognition, and cultural landscapes; and discussions

B prefix=language course for business majors
C prefix=course cross-listed course
H prefix=honors course

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of the relevance of hunter-gatherer studies in the context of world archaeology. (F,SP)

129D. The Archaeology of Global Change. (4) This course explores the interface between archaeology, ecology, geography, environmental studies, and geographic information science. This course will cover a wide range of current scientific techniques used in the field and in the analysis of geoarchaeological materials. The course will include field and laboratory studies in analytical chemistry, geology, petrology/rock physics, and a survey of dating materials in archaeology. The historical development of geoarchaeological science and other aspects of archaeological science applied to geoarchaeological materials. Also listed as Earth and Planetary Science C171. (F,SP)

131. History and Theory of Archaeology. (4) Three hours of lecture per week. Prerequisites: 2 or consent of instructor. Formerly 130. A critical review of the historical and philosophical premises of past and present anthropological theory with respect to its concepts of time and change. (F,SP)

C131. Geoarchaeological Science. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or Earth and Planetary Science 50, or consent of instructor. Formerly 131. This survey and laboratory course will cover a broad range of current scientific techniques used in the field and in the analysis of geoarchaeological materials. The course includes field and laboratory studies in analytical chemistry, geology, petrology/rock physics, and a survey of dating materials in archaeology. The historical development of geoarchaeological science and other aspects of archaeological science applied to geoarchaeological materials. Also listed as Earth and Planetary Science C171. (F,SP)

132. Analysis of Archaeological Materials. Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or consent of instructor. Principles of analysis of inorganic archaeological materials, including, but not limited to stone, ceramics, and metals, with laboratory instruction. These courses meet the requirement for the major and may be taken in any sequence. (F,SP)

132A. Analysis of Archaeological Ceramics. (4) Three hours of lecture and laboratory instruction in methods of analysis of ceramics used by archaeologists to establish a time scale, to document interconnections between different areas, sites, or groups of people, to suggest what activities were carried out at particular sites, and to understand the organization of ceramic production itself. (F,SP)

134. Analysis of the Archaeological Record. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or consent of instructor. Guidance in the preparation of excavated materials for publication, including sampling and analysis strategies, drawing, photography, and write-up. (F,SP)

134A. Field Course in Archaeological Methods. (6) Course may be repeated for credit. One hour of lecture and eight hours of fieldwork per week. Forty hours of fieldwork for four weeks. Prerequisites: 2 or consent of instructor. Formerly 133 and N133. Practical experience in the field study of archaeological sites and materials. Coverage may include reconnaissance, mapping, recording, and excavation. (F,SP)

134B. Archaeological Laboratory Practicum. (1-4) One hour of lecture and two to 11 hours of laboratory per week. Prerequisites: Consent of instructor. This is a practical laboratory course that offers a team of students the opportunity to work closely with faculty on an assigned research project. The course is open to all students with an interest in archaeology, physical or natural sciences, or archaeological material analysis. May be taken concurrently with other laboratory courses or as the logical follow-up to a field school. Projects will vary by course. (F,SP)

135. Paleoethnobotany: Archaeological Methods and Laboratory Techniques. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or consent of instructor. An introduction to the basic approaches and techniques in archaeobotanical analysis. A series of different data types and their unique approaches will be discussed, including macrofloral remains, phytoliths, pollen, botanical analysis of macrofossil remains. Laboratory study will include the major classes of plant remains likely to be encountered in archaeological sites. Discussion will emphasize the use of plant remains to answer archaeobotanical research questions, rather than study the plant remains for their own sake. Microscope work and computing will be included. (F,SP)

135B. Environmental Archaeology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 2 and consent of instructor. Formerly 135. This is a course that builds on the fieldwork conducted by the participants in the Summer Sessions field schools in archaeology. Students will participate in the field school as post-graduate students and will be assigned responsibilities in the laboratory to guide new students through the processing of the multimedia record and other digitized archaeological data. (F,SP)

136. Anthropology. (4) Three hours of lecture per week. Prerequisites: 2 or consent of instructor. Formerly 136A. An opportunity to work with sixth-graders in exploring the worlds of archaeology, history, and computer-based technologies. Meets the Method requirement for the anthropology major. (F,SP)

136A. Museum Exhibit Curation and Design. (4) Three hours of lecture and four hours of studio per week. A practical introduction to contemporary museum approaches to exhibition design, with particular application to the design of exhibits that present cultural heritage, art, and natural history museums. Both the theory of museum exhibit design and practice will be covered, including critiques of representation; issues of cultural heritage; conversational, educational, and interpretative approaches; and incorporation of interactivity, including digital media. (F,SP)

136B. Museum Methods. (4) This course will introduce participants to the fundamentals of contemporary museum practices. It is intended for two groups of students: (1) individuals who may be thinking of conducting research in museums and may benefit from an understanding of the way these institutions work; and (2) individuals interested in thinking of museum work as a post-graduate career. The course will include both discussion of museum concepts and practical application of these concepts through real-world exercises. While the course fulfills the Method requirement, it is not one of the prerequisites for the Museum Studies major, which will be an introduction to contemporary museum practices. The course will be open to students enrolled in the School of Museum Studies. (F,SP)

136C. Multimedia Authoring, Part 1. (4) One hour of lecture and four hours of studio per week. A practical introduction to contemporary museum approaches to exhibition design, with particular application to the design of exhibits that present cultural heritage, art, and natural history museums. Both the theory of museum exhibit design and practice will be covered, including critiques of representation; issues of cultural heritage; conversational, educational, and interpretative approaches; and incorporation of interactivity, including digital media. (F,SP)

136D. Multimedia Authoring, Part 2. (4) One hour of lecture and four hours of laboratory per week. Prerequisites: 136C. This course is the second part in a two-part series of courses that coach students in research and presentation of archaeological information through nonlinear multimedia authoring. The content of the course varies and may focus on an area or a topic depending on instructor. Students will learn the basics of multimedia authoring: processing, planning, and design. The focus is on content development and evaluation of digital research sources, with an introduction to software skills and practice. (F,SP)

138A. History and Theory of Ethnographic Film. (4) Three hours of lecture per week. Prerequisites: 3 or 114. This course will trace the development of ethnographic film from its beginnings at the turn of the century to the present. In addition to looking at seminal works in the field, more recent and innovative forms of production will be viewed and analyzed. Topics of interest include the role of visual media in ethnography, an art form that is distinct from filmmaking and TV production, and the problematic relationship of watching and being watched. The course will also present students with a range of interests, including documentation, representation, issues of cultural heritage, and the production and consumption of digital video. (F,SP)

138B. Field Production of Ethnographic Film. (5) Three hours of lecture and three hours of laboratory per week. Prerequisites: 138A. This course is devoted to training students in methods of ethnographic film production. Based on the production of an ethnographic film produced in Anthro 138A, students will work toward the production of a digital video from selected project proposals. In addition to weekly discussions of student projects, guest consultants and lecturers will lend their expertise on aspects of production, as well as editing. (F,SP)

139. Controlling Processes. (4) Three hours of lecture per week. Prerequisites: Those with at least one social science course will be more familiar with the
subject matter. This course will discuss key theoretical concepts related to power and control and examine indirect mechanisms and processes by which direct control mechanisms remain hidden, voluntary, and unconscious in industrialized societies. Readings will cover language, law, politics, religion, medicine, sex, and gender. (SP)

140. The Anthropology of Food. (4) Three hours of lecture per week. Prerequisites: 3 or equivalent or consent of instructor. This course examines the place of food in society and includes discussions of identity, taste, taboos, ritual, traditions, nationalism, health, alcohol use, civilizing society, globalization, and the global politics of food. (F,SP)

141. Comparative Society. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Theories of social structure, functional interrelationships of social institutions. Primary emphasis on non-Western societies. (F,SP)

142. Kinship and Family. (4) Three hours of lecture per week. Prerequisites: 3. Comparative study of the family and kinship systems in non-state and state societies. (SP)

144. Social and Cultural Change. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. An exploration of evolutionary and revolutionary change in different times and places, and will consider new forms of consciousness and culture generated by the colonial encounter, agrarian transition, industrialization, emigration, and the impact of cosmopolitan culture on non-Western societies. (F,SP)

145. Urban Anthropology. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. A consideration of anthropological concepts and methods for the urbanization process in towns and cities. (SP)

147A. Anthropology of Gender. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. The course explores major developments within feminist theory in the 20th century within an international context, with special attention to issues of class, culture, race, ethnicity, and sexuality. (F,SP)

C147B. Sexuality, Culture, and Colonialism. (4) Three hours of lecture per week. Prerequisites: 3 or Sociology 3. An introduction to social theory and ethnographic methodology in the cross-cultural study of sexuality, gender, and sexuality orientation and gender identity. The course will stress the relationships between culture, international and local political economy, and the representation and experience of what we culturally call homosexuality, bisexuality, and transgender identities. (F,SP)

147C. Globalization and Gender in the Asia Pacific. (4) Three hours of lecture per week. Globalization and its reworking of gender systems and rights is analyzed using market-state relations, and accelerated transnationalism. Contemporary capitalism involves the reformation of the world economy, with consequences for relations between state and society. Transnationalism refers to the flow of people, goods, cultures, and politics across national borders prompted by markets, migrations, criminal syndicates, etc. Interconnection between regions and nation-states transforms the modern lifeworld. (SP)

148. Anthropology of the Environment. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Surveys anthropological perspectives on the environment and examines differing cultural constructions of nature. Coverage includes theories of nature, case materials extracted from Third World agrarian contexts to urban North America. Topics may include cultural ecology, political ecology, cultural politics of nature, and environmental imaginaries. (F,SP)

149. Psychological Anthropology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 3 or consent of instructor. In the contemporary world, knowledge, values, philosophies, and techniques of the self, understandings of normality and pathology, illness and healing, are increasingly engaged in a dialogue with each other in the lives of the individuals and the imagination of people. The terms of this dialogue are often unequal and painful, yet they are also productive of new subjectivities and new voices. It is the task of a renewed psychological anthropology to study and reflect on these processes. Topics to be covered in this class include new forms of the subject and ethics at the intersection of psychical/psychiatric, political, and religious processes; psycho/psychoanalytic, psychoanalysis, the psychology of colonization and racism; anthropological approaches to possession and altered states, emotion, culture, and the imagination, madness and mental illness. The specific stress will be on the stakes of anthropological psychology today, for an understanding of power and subjugation, delusion and the imagination, violence, and the possibility of new forms of life. (F,SP)

150. Utopia: Art and Power in Modern Times. (4) Four hours of lecture per week. Modern times have been dominated by utopian visions of how to achieve a happy future society. Artists in competing social systems played a central role in the development of these visions, which were filled with paradoxes, contributing to the creation not only of the most liberating and progressive ideals and values but also to the most oppressive regimes and ideologies. The course examines: What is art? What can it achieve and destroy? What is beauty, ecstatic freedom, and the relationship between esthetics, ethics, and power? (F,SP)

151. Anthropology of Tourism. (4) Three hours of lecture per week. (1) Variations in touristic motivations and behaviors and (2) the political, economic and cultural impact of tourism on host cultures and communities. (F,SP)

152. Art and Culture. (4) Three hours of lecture per week. Graphic and plastic arts and their relations to culture in non-literate societies; illustrative material from the Metropolitan Museum of Anthropology. (F,SP)

155. Modernity. (4) Three hours of lecture per week. This upper division course presents episodes in the understanding of anthropos (man, humanity, civilization, etc.) in its modern figuration. The course will juxtapose the key themes above modernity and will examine episodes in the history of the arts and/or sciences. (F,SP)

156. Anthropology of the Contemporary. (4) Three hours of lecture per week. This course is an introduction to the conceptual field of “the contemporary,” a stylogenetic period that stands in contrast to “modernity” and “post-modernity,” and which opens up inquiries into the actual state of things, particular for anthropology. Anthropology 155, while not required, is highly recommended as a prerequisite. (F,SP)

156A. Politics and Anthropology. (4) Three hours of lecture per week. Prerequisites: 3. Anthropological concepts relevant to the comparative analysis of political ethnicity and socio-political change. Particular attention will be given to the retellings of culture and politics. (F,SP)

156B. Culture and Power. (4) Three hours of lecture per week. The course examines how representations are situated within fields of power and, in turn, how political constructions are translated into cultural forms. Topics include the study and history of social science, power/knowledge, the social, difference and power, social science and ethics. (F,SP)

156C. Anthropology of Modernity: Science. (4) Three hours of lecture per week. Prerequisites: A background in critical theory is required. We take an anthropological approach to modern science understood as an historically situated, socially contextualized set of practices, disciplines, and institutions. Readings will include theoretical works drawn from Kuhn, Heidegger, Weber, and Foucault, as well as case studies with particular reference to contemporary bioscience. Students are expected to have a background in contemporary theory.

157. Anthropology of Law. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Comparative survey of the ethnography of law; methods and concepts relevant to the comparative analysis of the forms and functions of law. (F)

158. Religion and Anthropology. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. A consideration of the interplay between religious beliefs and institutions and other aspects of culture. (F,SP)

160. Forms of Folklore. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 3 or consent of instructor. A world-wide survey of the major and minor forms of folklore with special emphasis upon proverbs, riddles, superstitions, games, songs, and narratives. (F,SP)

C160. Forms of Folklore. (4) Three hours of lecture per week. Prerequisites: Upper division standing. A world-wide survey of the major and minor forms of folklore with special emphasis upon proverbs, riddles, superstitions, games, songs, and narratives. This course satisfies the American Cultures requirement. (F,SP)

161. Narrative Folklore. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. The study of folktales, myths, legends, and other forms of verbal art; methods and theories of folklore. (F,SP)

162. Topics in Folklore. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Special topics in folklore or psycho-musical folklore. (F,SP)

162AC. Topics in Folklore. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Upper division standing. This course satisfies the American Cultures requirement. (F,SP)

166. Language, Culture, and Society. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. This course examines the complex relationships between language, culture, and society. The materials in this course draw on the fields of linguistic anthropology, linguistics, sociolinguistics, philology of language, discourse analysis, and literary criticism to explore theories about how language is shaped by—and in turn shapes—our understandings about the world, social relations, identities, power, and other social and political processes. (F,SP)

169B. Research Theory and Methods in Socio-Cultural Anthropology. (5) Three hours of lecture and one hour of discussion per week. Prerequisites: 3. Introduction to research problems and research design techniques. Will involve local field research on the collection, analysis, and presentation of data. This course requires 15 hours of work per week including class time, outside work and preparation. One section meeting per week will be required.

170. China. (4) Three hours of lecture per week. Chinese culture and society with an emphasis on the village level. (F,SP)

171. Japan. (4) Three hours of lecture per week. Ethnological treatment of historical and modern Japanese culture, covering history, art and religion; family, kinship, and community organization; political, economic, social problems in modern Japan. The approach utilizes both sociological and psycho-cultural forms of analysis. (F,SP)

172AC. Special Topics in American Cultures. (4) Course may be repeated for credit with different instructor approval. Three hours of lecture per week. Various topics which meet the American Cultures requirement,
taught by members of the Social/Cultural faculty. See the Schedule of Classes for each semester, and the department’s catalog for course title, description, instructor name, and specific format. This course satisfies the American Cultures requirement. (F,SP)

174AC. California Historical Anthropology. (4) Three hours of lecture per week. Combining historical archaeology, ethnohistory, and ethnography, this course will take account of ethnic groups and their interaction in California: Native Californians; mission, presidio, pueblo, and rancho communities of Spanish/Mexican/Central Mexican; Russian frontier society at Fort Ross; and American expansion into California, especially the Gold Rush. The course will also examine how the colonial past affects ethnic relations and cultural identity among contemporary California Indians. This course satisfies the American Cultures requirement. (F,SP)

176. Contemporary Latin America. (4) Course may be repeated for credit. Three hours of lecture per week. Emphasis on Iberian-American assimilation, African influences, development of folk-peasant societies, and the concept of national cultures. Discussion of contemporary issues will also be covered. (F,SP)

177. Ethnography of the Maya. (4) Students will receive no credit for 179 after taking 188 spring or fall 2001. Three hours of lecture per week. Prerequisites: 3 recommended. An introduction to the anthropological study of Maya people in Southern Mexico, Guatemala, and Belize. The course focuses on certain parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies, and how the Maya transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest and colonization, indigenous resistance and rebellion, and recent Pan-Maya activism. (F,SP)

180. European Society. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Various topics in historical and modern perspective. Rural-urban relationships and the dynamics of change. (SP)

181. Themes in the Anthropology of the Middle East and Islam. (4) Three hours of lecture per week. Prerequisites: 3 recommended. Cultures of the contemporary Near East, with special emphasis upon Arab populations. (F,SP)

183. Topics in the Anthropological Study of Africa. (4) Three hours of lecture per week. Prerequisites: 3 and/or 114. The course will focus on African societies and cultures as well as on the studies of Africanist anthropology. Images and constructs of Africa or Africans will thus be contextualized in relation to prevailing anthropological theories at different times, and in different regions of the continent. (F,SP)

184. South Asia. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Various topics in historical and cultural change, with an emphasis on India and Pakistan. (F,SP)

186. Southeast Asia. (4) Three hours of lecture per week. Prerequisites: 3 or other social science introductory course. This course examines the current political, economic, and cultural dynamism of the region. Topics include tribalism, patron-colonialism, gender relations, capitalism, and the postcolonial state. (F,SP)

C186. Southeast Asia. (4) Three hours of lecture per week. Prerequisites: 3 or other social science introductory course. This course examines the current political, economic, and cultural dynamism of the region. Topics include tribalism, patron-colonialism, gender relations, capitalism, and the postcolonial state. Also listed as South and Southeast Asian Studies C186. (F,SP)

188. Topics in Area Studies. (4) Course may be repeated for credit. Three hours of lecture per week. Special topics in cultural areas not otherwise covered. (F,SP)

189. Special Topics in Social/Cultural Anthropology. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Various topics covering current research theory, method; issues of social and cultural concern; culture change, conflict, and adaptation. May combine more than one subspecialty of anthropol- ogy. (F,SP)

189A. Special Topics in Cultural Anthropology/Area. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 3 recommended. Special topics in cultural anthropology which meet the area requirement for the major. (F,SP)

H195A-H195B. Senior Honors. (4;4) Three hours of tutorial per week. Credit and grade to be awarded on completion of sequence. Prerequisites: Open only to honors students. Systematic readings in history and modern theory, collection and analysis of research materials, and the preparation of an honors thesis. Group or individual tutorials. (F,SP)

196. Undergraduate Seminar. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Seminar for the advanced study of the subject matter of a previously given upper division course, emphasizing reading and discussion. (SP)

197. Fieldwork. (1-12) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three to 36 hours of tutorial or fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: 3 or consent of instructor. May be repeated for credit. Three hours of tutorial per week. Prerequisites: 60 units; good academic standing. Undergraduate research by small groups. (F,SP)

198. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Supervised independent study and research. (SP)

Graduate Courses

Biological Anthropology

C200. Human Evolution. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Topic to vary each semester. Also listed as Integrative Biology C265. (SP)

210. Special Topics in Physical Anthropology. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)

Medical Anthropology

215B. Advanced Medical Anthropology. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Anthropological theory, data, and methodology in relation to the health sciences, Lectures, readings, and supervised field research. May be taken in association with Medical Anthropology at UCSF. (SP)

217. Discourse and of the Body. (4) Three hours of seminar per week. This course juxtaposes discourse analysis and approaches to health and biomedicine, querying how ideologies of language and communication provide implicit foundations for work on health, disease, medicine, and the body and how biopolitical discourses and practices inform constructions of discourse. (F,SP)

219. Topics in Medical Anthropology. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Comparative study of mental illness and socially generated disease: psychiatric treatment, practitioners, and institutions. (SP)

Archaeology

220. Western North America. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)

221. Pre-Columbian Central America. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)

222. Archaeology of South America. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)

227. Historical Archaeology Research. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Graduate standing with some background in archaeology, or undergraduates who have taken 2, or consent of instructor. Historical archaeology seminar. Subject matter will vary from year to year. (SP)

228. Method. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Requires enrollment in the first and second year graduate students in archaeology. Three hours of seminar discussion of major issues in the history and theory of archaeological research and practice (229A), and the research strategies and artifacts of various kinds of archaeological problems (229B). To be offered alternate semesters. (SP)

229C. Writing the Field in Archaeology. (4) Two hours of seminar per week. This seminar is intended to guide students in the definition of a field within archaeology, from initial conceptualization to writing of a field statement, dissertation chapter, or review article. (F,SP)

230. Special Topics in Archaeology. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)

231. Advanced Topics in Bioarchaeology. (4) Two hours of seminar per week. Prerequisites: Consent of instructor. This advanced seminar course explores how we reconstruct past lifeways from archaeologi- cal skeletal remains. It deals with the skeletal biology of past populations, covering both the theoretical approaches and methods used in the analysis of skeletal and dental remains. (F,SP)

232. Advanced Topics in Bone Biology: Biocul- tural and Evolutionary Perspectives. (4) Two hours of seminar per week. Prerequisites: 127A or C103/ Integrative Biology C142 and C143. This advanced seminar will discuss influences on bone health and maintenance from a unique biocultural and evolutionary perspective. (F,SP)

235. Special Topics in Museum Anthropology. (4) Course may be repeated for credit. Two hours of seminar per week. Contemporary issues in museum studies from an anthropological perspective. (F,SP)

Sociocultural Anthropology

240A-240B. Fundamentals of Anthropological Theory. (5;5) Four to six hours of seminar per week. Prerequisites: Enrollment is strictly limited to and required of all anthropology and medical anthropol- ogy graduate students who have not been advanced to candidacy. Anthropological theory and practice of the body in relation to anthropology. This will provide a starting point for reading a series of classic ethnographies in new ways, as well as examining some dimensions of the current research agenda in cultural anthropology. (SP)

250. Seminars in Social and Cultural Anthropology. (4) Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)

251. Special Topics in Social and Cultural Anthropology. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. (SP)
Linguistics
270B. Fundamentals of Language in Context. (4) Three hours of seminar per week. Intensive introduction to the study of language as a cultural system and speech as socially embedded communicative practice. This is the core course for students wishing to take further coursework in linguistic anthropology.

Area Studies
280. Seminars in Area Studies. Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Courses will vary from year to year. See departmental catalog for detailed descriptions of course offerings for each semester.

280B. Africa. (4)
280C. South Asia. (4)
280D. China. (4)
280X. Special Topics in Area Studies. (4)

290. Survey of Anthropological Research. (1) Course may be repeated for credit. Two hours of lecture every other week. Must be taken on a satisfactory/unsatisfactory basis. Required each term of all registered graduate students prior to their advancement to Ph.D. candidacy.

Independent Study
296A. Supervised Research. (2-12) Course may be repeated for credit. Two to eight hours of field research per week. Prerequisites: Consent of instructor. Variable units for field research. Course may be repeated for credit. Two to eight hours of conference per week. Prerequisites: Consent of instructor. Individual conferences intended to provide directed reading in subject matter not covered by available seminar offerings.

296B. Supervised Research. (4) Course may be repeated for credit. Two hours of consultation per week. Prerequisites: Consent of instructor. Analysis and write-up of field materials.

298B. Directed Research. (1-8) Course may be repeated for credit. One to eight hours of conference per week. Prerequisites: Consent of instructor. Individual conferences intended to provide directed reading in subject matter not covered by available seminar offerings.

Independent Study
298C. Directed Research. (1-12) Course may be repeated for credit. One to eight hours of consultation per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual conferences intended to provide supervision in the preparation of an original research paper or dissertation.

299. Directed Study for Doctoral Students. (1-12) Course may be repeated for credit. Two to eight hours of conference per week. Prerequisites: Consent of instructor. Prerequisites: Consent of instructor. Individual conferences intended to provide supervision in the preparation of an original research paper or dissertation.

Professional Courses
300. Graduate Pedagogy Seminar. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Training in both the logistics and the pedagogical issues of undergraduate teaching. (F,SP) Staff

301. Professional Training: Teaching. (1-6) Course may be repeated for a maximum of 12 units. Two hours of seminar and eight hours of lecture per week. Prerequisites: Consent of instructor. Supervised training with instructor on teaching undergraduates.

Folklore
280. Problems in Folklore. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor.

C261. Theories of Narrative. (4) Three hours of seminar per week. This course examines a broad range of theories that elucidate the formal, structural, and contextual properties of narratives in relation to gestures, the body, and emotion; imagination and fantasy; memory and the senses; space and time. It focuses on narratives at work, on the move, in action as they emerge from the matrix of the everyday preeminently, storytelling in conversation—as key to folk genres—the folktale, the legend, the epic, the myth. Also listed as Folklore C261. *(F,SP)* Staff

C262A. Theories of Traditionality and Modernity. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This course examines the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reread foundational works published between the 17th century and the present—along with philosophical texts with which they are in dialogue—in terms of how they are imbricated within and help produce traditionalities and modernities. Also listed as Folklore C262A. *(F,SP)* Staff

C262B. Theories of Traditionality and Modernity. (4) Course may be repeated for credit with different topic and different instructor. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reread foundational works published between the 17th century and the present—along with philosophical texts with which they are in dialogue—in terms of how they are imbricated within and help produce traditionalities and modernities. Also listed as Folklore C262B. *(SP)* Briggs

Graduate research in the AS&T Program benefits from state-of-the-art experimental facilities at the Berkeley campus and the Lawrence Berkeley National Laboratory. Among these facilities are the National Center for Electron Microscopy, with the world’s highest resolution high-voltage microscope; a microfabrication lab for student work involving lithography, MEMS ion-implantation, and thin-film deposition; an integrated sensors laboratory; femtosecond laser laboratories; optical, electrical, and magnetic resonance spectrosocies; short wavelength laser and X-ray research laboratories; a unparalleled variety of material, chemical, and surface science analytic equipment; and a soft X-ray synchrotron dedicated to materials processing, laser-induced chemical processes, laser probing of complex reacting systems, ultrafast phenomena, particle accelerators, nonlinear dynamics, chaotic systems, numerical methods, and topics in computational fluid mechanics and reacting flows. This program awards the Doctor of Philosophy degree.

In addition, students who are admitted to the program may also apply for the designated emphasis in nanoscale science and engineering (DE NSE) or in Energy, Science, and Technology (DE EST). Students usually apply for these DE during their first or second year of study. For further information about the DE NSE, visit nano.berkeley.edu/educational/DEGradGroup.html, and for information about the DE EST, see mse.berkeley.edu/deest.

Graduate research in the AS&T Program provides ample opportunity to develop new research interests. In addition, AS&T sponsors the following courses: AST 210/EE 213, Soft X-Rays and EUV Radiation (3 units); AST 239/EE 239, Partially Ionized Plasmas (3 units); and 299. Directed Research. (1-12) Course may be repeated for credit. Two to eight hours of conference per week. Prerequisites: Consent of instructor. Individual conferences intended to provide supervision in the preparation of an original research paper or dissertation.
C210. Soft X-rays and Extreme Ultraviolet Radiation. (3) Three hours of lecture per week. This course will explore modern developments in the physics and applications of soft X-rays. It begins with a review of electromagnetic radiation at short wavelengths including dipole radiation, scattering, and refractive index, using a semi-classical atomic model. Subject matter will include the diagnostics. DX, X-rays, and X-ray tubes, synchrotron radiation, laser-plasma sources, X-ray lasers, and black body radiation. Concepts of spatial and temporal coherence will be discussed. Also listed as Electrical Engineering C213. (SP) Atwood

C225. Thin-Film Science and Technology. (3) Three hours of lecture per week. Prerequisites: Graduating in engineering, physics, chemistry, or chemical engineering. Thin-film nucleation and growth, microstructural evolution and reactions. Comparison of thin-film deposition techniques. Characterization techniques. Processing of thin films by ion implantation and rapid annealing. Processing-microstructure-property-performance relationships in the context of applications in information storage, ICs, microelectromechanical systems and optoelectronics. Also listed as Materials Science and Engineering C225. (SP) Staff

Program Description
Undergraduate Program. Undergraduate studies in the College of Environmental Design provides a liberal education among an active community of students, scholars, creative designers, and technologists concerned with the built environment, within the larger environment of a great university. Graduate Philosophy. The graduate programs in architecture aim to educate architects and scholars who contribute to the practice and discipline of architecture and to the development of a technologically sophisticated and humane built environment. The professional program is intended to develop students’ abilities to conceive and accurately describe appropriate built spaces at several scales, to help the learners the processes used to bring buildings into place, and to provide a basis for understanding the consequences that complex of buildings and open spaces have for inhabitants, society, and the environment.

In both its undergraduate and graduate programs, the department puts special emphasis on the student element of its academic program, recruiting active architecture professionals to work in consultation with regular faculty in leading the courses.

Adjoint Associate Professor
Charles A. Huisenga, M.S. University of California, Berkeley. Design and operation of building energy systems.

Department Overview
The Department of Architecture at UC Berkeley has a strong tradition of fostering independent design thinking and research. Our award-winning faculty offer vigorous undergraduate and graduate educational programs and carry out leading research in constructed environments, architectural technologies, and architectural humanities. The multidisciplinary interests of our faculty and graduate students form the basis of exploratory research concerned with other disciplines, including anthropology, international studies, engineering, new media, and urban studies.

Architecture
(College of Environmental Design)
Department Office: 232 Wurster Hall #1800, (510) 642-4942
arch.ced.berkeley.edu
Chair: Gail S. Brager, Ph.D.

Professors


*Stam Davis, M.E.D. Yale University. F.A.I.A. Architectural education, architecture history, cultural criticism.

Anthony Dubovsky, M.A. University of California, Berkeley. Visual design.


Harrison S. Fraker Jr., M.F.A. Princeton University. F.A.I.A. Affordable housing, sustainable environments, passive solar, daylighting and energy conservation.

Paul Groth, Ph.D. University of California, Berkeley. History of urban form and cultural landscape.


R. Gary Black, M.Arch., M.S. University of California, Berkeley. Structures.


Ren Choe (The Eva Lii Chair in Design Ethics), M.Arch. Massachusetts Institute of Technology. Architectural design.

C. Greig Crysler, Ph.D. State University of New York, Binghamton. Architecture, theory and criticism.

Lisa Iwamoto, M.Arch. Harvard University. Design, architectural fabrication, edge city landscape.


Gary R. Brown (Emeritus), M.Arch. Sara S. Ishikawa (Emeritus), B.Arch. Kenneth H. Cardwell (Emeritus), B.Arch. Assistant Professors
Nicholas de Monchaux, M.Arch. Princeton University. Design, urban design, digital representation.


Andrew Shanken, Ph.D. Princeton University. History of American architecture and urbanism, impact of World War II on design professions and American culture.

Department Of Architecture
UC Berkeley
physics, and breadth area courses in natural sciences, social and behavioral sciences, historical studies, international studies, philosophy and values, and arts and literature. At the upper-division level, students take a two-course architecture studio sequence, a two-course architecture history sequence, three architecture “area studies” courses designed to meet specific requirements within the major, and additional design and technology courses are recommended for students preparing for Master of Architecture programs. Most students are able to take one-quarter of their program as electives.

Accreditation. In the United States, most state regulatory boards require the degree from an accredited U.S. professional degree programs in architecture, recognizes two types of accredited degrees: (1) the five-year professionally oriented Bachelor of Architecture and (2) the two-year professional Master of Architecture. The undergraduate degree is a foundation for continued education in a professional master’s degree program or for employment options in architecturally related areas.

Graduate Programs. The department offers the accredited Master of Science Degree in Architecture, the academic degree Doctor of Philosophy, and several other degree programs as described below:

• Master of Architecture. The Master of Architecture program is designed to provide students seeking their professional degree with a comprehensive and challenging education leading to the practice of architecture. Graduates have the flexibility to choose a variety of pathways through the three-year rigorous program, depending upon previous education and experience. The department makes no restriction as to the field of undergraduate preparation. However, the length of the required residence period, the number of required semester course units, and the specific list of required courses may vary depending upon undergraduate major, profession in family practice, and previous graduate study, if any.

Additional prerequisites for admission to the professional Master of Architecture program are college-level or equivalent mathematics through precalculus, and elementary graduate assistant. Additional information is available from the department's graduate assistant.

• Master of Science Degree in Architecture. This nonprofessional degree program offers the opportunity for advanced research in specialized areas within the basic sciences and engineering. At the graduate level, it is appropriate for those who already hold a degree in architecture but wish to study a particular subfield. Applicants from related disciplines are encouraged to apply. Students will be expected to complete the course work which is designed to improve their facility in the professional practice of architecture and to foster their development as professional scholars. The design of the program places major emphasis on the individual's professional education and career goals. Students who have completed equivalent courses at other institutions are encouraged to apply. Additional information is available from the graduate assistant.

Program in Visual Studies (Master of Arts Degree in Design). There is a small program in Visual Studies at the graduate level leading to the Master of Arts Degree in Design. The program is designed to meet the specific needs and interests of the student in pursuing graduate work involved with visual design issues may apply.

The present degree is offered under Plan 1 of the Graduate Division, which requires 20 semester units plus a thesis. The length of time required for each student will vary, depending in part upon previous preparation. An undergraduate degree from the College of Environmental Design or an art-related field is helpful but not necessary. The principal emphasis in the admission process is on the portfolio that all applicants for admission to the graduate program must submit.

Course requirements are the same for each student, and range from 48 to 60 semester units. Students may choose from a list of approved courses. Students are encouraged to consult with the appropriate departmental advisor prior to registering for courses.

• Concurrent Program with the Department of City and Regional Planning. The Department of Architecture and the Department of City and Regional Planning offer a concurrent degree program leading to the dual M.Arch. and M.C.P. degrees for students holding the five-year Bachelor of Architecture degree or a four-year Bachelor of Arts/Bachelor of Science degree in architecture, or an equivalent in related disciplines. The Master of City Planning degree portion of the concurrent program requires completion of 36 semester units. Students call 24-72 semester units, depending upon the undergraduate degree. Applicants should indicate that they wish to be considered for the Concurrent Program in Architecture and City and Regional Planning when completing the UC Berkeley Graduate Application.

• Concurrent Program with the Department of Landscape Architecture and Environmental Planning. The Departments of Architecture and Landscape Architecture and Environmental Planning offer a concurrent degree program. This program will lead to two professional degrees: (1) Master of Architecture and (2) Master of Landscape Architecture. The program brings together two closely related branches of design—landscape architecture and the design of the site and the design of buildings. This program is for exceptionally qualified students with undergraduate degrees in architecture, landscape architecture, or undergraduate degrees in architecture and landscape architecture and who satisfy the admission requirements of the one- or two-year M.Arch. program and/or the two-year M.L.A. program. Applicants should indicate that they wish to be considered for the Concurrent Program in Architecture and Landscape Architecture when completing the UC Berkeley Graduate Application. Acceptance into the concurrent degree program will depend upon the individual student's qualifications. More information may be obtained from the Graduate Office in 202 Wurster Hall or from the Department of Landscape Architecture and Environmental Planning website at landarch.berkeley.edu.

• Concurrent Degree Program with the Department of Civil and Environmental Engineering, Division of Structural Engineering, Mechanics, and Materials. The two departments offer a joint program with a concurrent degree for exceptionally qualified students. Students must fulfill the course requirements for both departments but are allowed a reduction in elective units that will achieve a savings in the time enrolled, varying from one semester to two semesters, depending upon previous education and experience. The department makes no restriction as to the field of undergraduate preparation. Some engineering courses are prerequisite to entering the program or may be taken during the first year of enrollment without credit toward the minimum of 24 units outside architecture in the special area agreed upon with the IAS advisor. For additional information on these degree programs, please see arch.ced.berkeley.edu/programs or the Graduate Office.

Special Activities and Programs

The department offers several unique programs and activities, including study-abroad programs for undergraduate and graduate students and focused studies for graduate students. Recent studies have worked in India, Thailand, Mexico, Brazil, and Italy. The college also offers career workshops, job fairs, and internship placements for architecture majors. The career center offers the opportunity to hear internationally acclaimed speakers who often participate in classes and seminars as part of their visit. Opportunities are also available for students to participate in department exhibitions, participate in a mentor program, and become involved in student chapters of professional organizations such as the American Institute of Architects. Connections are established in joint graduate degree programs with the Departments of City and Regional Planning and Landscape Architecture and Environmental Planning, as well as the Division of Structural Engineering, Mechanics, and Materials in the Department of Civil and Environmental Engineering. A post-professional Master of Urban Design

B prefix=language course for business majors C prefix=cross-listed course H prefix=honors course R prefix=course satisfies R&C requirement AC suffix=course satisfies American Cultures requirement

*Professor of the Graduate School *Recipient of Distinguished Teaching Award
Architectural Design and Representation; Professional Practice

Upper Division Courses

100A-100B. Fundamentals of Architectural Design. (6-12) Three and five hours of lecture per week. Prerequisites: ED 111A-11B. Must be taken in sequence. Introductory courses in the design of buildings. Problems emphasize the major social, technological and environmental determinants. 500A focuses on the design process, social factors and site planning. 100B stresses structures, materials, and energy considerations. Studio work is supplemented by lectures, discussions, readings and field trips. (F,SP) Staff

101. Case Studies in Architecture. (5) Course may be repeated for credit as topic varies. Three hours of lecture and five hours of studio per week. Prerequisites: 100A-100B. Problems in the design of buildings of intermediate complexity. Each section deals with a selected topic and concentrates on developing conceptual strategies in the analysis of design and historical connections. Material, formal and contextual considerations are applied to buildings. Studio work is supplemented by lectures, discussions, readings, and field trips. (F,SP) Staff

109. Special Topics in Architectural Design. (1-4) Course may be repeated for credit as topic varies. One to four hours of lecture per week. Prerequisites: Consent of instructor. Selected topics in the theories and concepts of architectural design. For current offerings, see department web site.

120. Introduction to the Practice of Architecture. (3) Three hours of lecture per week. Architect, owner, developer, and contractor relations, contract documents, and the ethics of the profession. (F) Davis

128. Architectural Internship. (5) Twenty-four hour internship plus 18 hours of seminar per semester. Prerequisites: Consent of instructor. An intensive and structured exposure to the professional practice of architecture using the resources of practicing architect's offices as the "laboratory." (SP) Comerio

129X. Special Topics in the Practice of Design. (1-4) Fifteen hours lecture/seminar per unit per semester. (F,SP)

132. Introduction to Computer-Aided Design in Architecture. (4) Three hours of lecture and three hours of studio per week. Prerequisites: IDS 110 or equivalent or consent of instructor. This course introduces students to the principles of CAD, the theories and methods on which it is founded, and its principal applications in practice (generating, evaluating, modeling, drafting, and rendering design solutions). (F) Kalay

133. Architecture of Globalization: Contested Spaces of Global Culture. (3) Three hours of lecture/seminar per week. Prerequisites: This course is open to graduate students only. Undergraduate students should contact the department. This seminar examines the relationship between architecture and the processes associated with globalization. The social and spatial changes that have occurred over the last four decades are explored in relation to distinctive national conditions and their connection to historical forces such as colonization and imperialism. Theoretical arguments about international urban political economy, uneven development, deindustrialization, and the growth of tourism and service industries, are grounded in specific urban and architectural contexts. Case studies explore issues such as urban entrepreneurialism and the branding of cities and nation-states; heritage practices and the postcolonial politics of place; border cities, and the urbanism of transnational production; cities, terror, and the global architecture of security; critical regionalism, localism, and other responses to debates on place and placelessness. Readings and class discussions examine course themes in a comparative framework and consider their implications for architectural design, education, and professional practice. (F,SP) Crysler

138. Advanced Computer-Aided Rendering and Animation. (1-4) Course may be repeated for credit. This is a computer class that will enable students to carry out self-directed projects. Other projects in consultation with the professor and the GSI. There will be discussions, demonstrations, viewing of historical and current animations, idea sessions, field trips, guest reviews, and lectures. Idea development beyond the original project will result from the interaction of the idea with the computer input and class discussions. Results may be either 2D or 3D, still or animated. Groups of two or more students may work on a project. The class will be conducted in the Silicon Graphics Industries lab. Reviews will take place around the workstation. (F,SP) Staff

Graduate Courses

200A-200B. Fundamentals of Architectural Design. (7.7) Sixty hours of lecture/seminar and 120 hours of studio per semester. 200B must be taken on a satisfactory/unsatisfactory basis. 200B must be taken for a letter grade. Introductory course in architectural design and theories for graduate students. Problems emphasize the major social, technological and environmental determinants of buildings. Studio work is supplemented by lectures, discussions, readings, and field trips. (F,SP) Staff

201. Case Studies in Architectural Design. (5) Course may be repeated for credit. Three hours of lecture and two hours of studio per week. Prerequisites: 100A-100B or 200A-200B per semester. Each section deals with a specific problem such as housing, high-rise design, interiors, community development. Studio work is supplemented by lectures, discussions, readings, and field trips. (F,SP) Staff

202. Final Project Studio. Students may take 202A or 202B but not both; course must be taken in last semester of the Master of Architecture degree program. Prerequisites: Three semesters of 201 and 209D. This is the final project studio. Projects in 202B are presented in the form of a design thesis or a research thesis. Staff

20A. Final Project Studio: Thesis Option. (5) Course is designed to have students organize their own projects and defend them. Students seeking permission to enroll in this section must petition the chair of graduate advisers before the end of the fall semester. (SP)

209. Seminar: Architectural Design. Course may be repeated for credit as topic varies. One to four hours of lecture per week. Prerequisites: Second or third-year graduate standing. Topics deal with major problems and current issues in architectural design. (F,SP) Staff

209A. Seminar in Architectural Theory. (1-4) (F,SP)

209D. Final Project Preparation Seminar: Thesis. (1-4) Prerequisites: Graduate standing. Formerly 209A. This is a fall seminar for students who plan to work on final projects during the spring. The seminar, including lectures by the instructor, is meant to train students in pre-thesis or professional project research and to help them in selecting their thesis or professional report topic. The course includes weekly exercises ranging from writing articles documenting, illustrating, and critiquing buildings to producing a thesis or professional report prospectus. (F)

209X. Special Topics: Architectural Design. (1-4) (F,SP)

226. Collaboration by Digital Design. (3) Three hours of seminar per week. This project-based seminar studies the problem of multi-disciplinary and cross-cultural collaboration in the building industry. It employs two complementary approaches: (1) a theoretical approach, which examines the nature of collaboration in general and in architecture in particular, looks at the methods that have been used to foster and support it, and interrogates their advantages and shortcomings; and (2) a practical approach, which use a web-based multi-person design “game” that allow students to play different roles (architect, client, engineer, contractor, etc.), while collaborating on a design of a building. Offered alternate years. (F,SP) Kalay

229. Seminar on the Practice of Design. Course may be repeated for credit as topic varies. Prerequisites: Designated section of 129. Selected topics such as issues of project development and professional practice, construction law, materials and specifications, construction management, marketing and management, professional writing, issues in community development and public policy. For current section offerings, see departmental announcement. Staff

229A. Introduction to Construction Law. (1-4) (SP)

229X. Special Topics in the Practice of Design. (1-4) (F,SP)

Architectural History, Culture, and Society

Upper Division Courses

110AC. Social and Cultural Factors in Design. (4) Forty hours of lecture and 20 hours discussion per semester. The course is a survey of how political, cultural, social, and economic influences have affected architectural design. The focus for studying these broad topics will be housing of all types and special needs facilities. The twice-weekly one-hour sessions will be a combination of student debates on a topic presented
by the instructor, lectures, panels of guests, and stu-
dent presentations. The one and one-half hour section will focus on projects and field work. This course sat-
ifies the American Culture requirement. (F) Cranz

111. Housing: An International Survey. (3) Three
hours of lecture per week. Introduction to interna-
tional housing from the Architectural City Planning
perspective. Housing issues (social, cultural, and policy),
ranging from micro-scale (house) to macro-scale (city),
preparation of housing situations in developed and
developing countries. (SP) Staff

130. Introduction to Design Theories and Meth-
ods. (3) Forty-five hours of lecture and 20 hours of
discussion per semester. Formerly 130A. Compari-
sion of the theories of environmental design, and design and testing of various meth-
ods, tools, and techniques available for environmental
designers. Particular emphasis lies on the difficulties
of environmental design and related fields. (SP) Crysler

139X. Special Topics: Design Theories and Meth-
ods. (1-4) Course may be repeated for credit as topic
varies. Fifteen hours lecture/seminar per unit per
semester. Prerequisites: 130. (F,SP)

170A-170B. An Historical Survey of Architecture
and Urbanism. (4;4) Forty-five hours of lecture and 15
hours of seminar per semester. Prerequisites: The first
part of this sequence studies the ancient and medieval
periods; the second part studies the period since 1400.
The aim is to look at architecture and urbanism in their
broader context. (F,SP) Davids

173A. Modern Architecture. (3) Forty-five hours
of lecture per semester. Prerequisites: 170A-170B and
consent of instructor.

C174. Architecture in Depresssion and War. (3)
Three hours of seminar and one hour of discussion
per week. The Great Depresssion and World War II are
arguably the two most influential events for the
development of the built environment in the 20th cen-
tury. Not only did they alter the socio-economic and
political landscape on which architecture and urban plan-
ing developed, but they also led to technological
innovations and vital debates about the built environ-
ment. This course examines the 1930s and 1940s top-
ically, studying the work of the New Deal, corporate
responsibility to the Depression and war, the important
connections between architecture and advertising, the
role of the Museum of Modern Art in the promotion
of Modernism, the concept of the ideal house, and key
years of architectural movements from the period. Also
listed as American Studies C111A. (SP) Shanken

179. Proseminar in the History of Architecture. (1-
4) Course may be repeated for credit. Fifteen hours
of lecture/seminar per unit per semester. Prerequisites:
170A-170B and consent of instructor. Special topics in
Architecture. For current seminar offerings, see
departmental announcement. (F,SP)

Graduate Courses

211. Theory and Methods in the Social and Cul-
tural Basis of Design. (3-4) Course may be repeated
for credit. Three hours of seminar per week plus indi-
vidual advising. Prerequisites: 110 or consent of instruc-
tor. Explores a variety of theories which explain and
document the relationship between humans and the
environment they build; outlines the research meth-
ods appropriate to each theory. (SP) Cranz

212. Body-Conscious Design: Shoes, Chairs,
Rooms, and Beyond. (3) Three hours of seminar per
week. This seminar prepares students to design and
environmental design from the point of view of
how they interact with the human body. Tools and
clothing modify that interaction. Semi-fixed features,
especially furniture, can have greater impact on physical well being and social-
psychological comfort than fixed features like walls,
openings, and volume. Today, designers can help
redefine and legitimize new attitudes toward support-
ing the human body by, for example, designing for a
wide range of postural alternatives and possibly
designing new kinds of furniture. At the urban design
scale, the senses of proprioception and kinesthetics
can be used to shape architecture and landscape
architecture. This course covers these topics with spe-
cial emphasis on chair design and evaluation. The
public human attitudes toward posture and back support are explored. The course
heightens students’ consciousness of their own and others’ physical perceptions through weekly experi-
sional exercises: shoe, chair, and a room interior. (SP) Cranz

215. Landscape, Architecture, Infrastructure, and
Urbanism. (3) Three hours of seminar per week. This
course aims to explore how the physical and con-
ceptual understanding of landscape can enrich cur-
rent forms of urban design practice. At the junction of
landform, urban design, and architecture lies a rich field of possibilities that is
currently superseding the narrower field of each. The seminar focuses on urban
culture, contemporary culture and technology-automobiles, television, cell phones, and the Internet have socially,
culturally, environmentally, and physically reshaped
the urban fabric, calling into question the very definition
of urbanity. The course will explore the implications
for public space in an era of increased security and risk
mitigation and how designers may direct the various
visions of urban life to the world around us. (F,SP) Davids

216. The Sociology of Taste in Environmental
Design. (3) Three hours of seminar per week. Pre-
requisites: 110, or consent of instructor. Taste is at
work in the way we display our things as much as in the things themselves. A performance-
oriented model of taste observes that objects fall into
two broad categories: pragmatic (that support behav-
ior) and symbolic (that identify a person). People visu-
ally organize these two categories of objects using
both explicit and subconscious aesthetic rules to pro-
duce visually unified displays. Depending on how it is
used, how it is placed in relation to other things, an
object’s meaning can change. The seminar traces
where objects take on—and shed—meanings, de-
pending on how they are combined with one another. This seminar reviews the extensive body of 20th-
century theory and empirical research on taste and
considers the implications of theories about taste for
design creation, design education, and for client-
professional relations. (F,SP) Cranz

217. Social Aspects of Housing Design: Mid-Rise
Urbanism. (3) Three hours of seminar per week. Pre-
requisites: Consent of instructor. The course explores
strategies to bring coherence and continuity back to
the city focusing on mid-rise, higher density urban-
ism and the potential and difficulties of this scale of
building. The scenic urban landscapes, with
out losing the potential of choice and diversity. The seminars are organized in case studies revolving
around four cities: Amsterdam, Barcelona, Beijing,
and New York. Design exercises parallel the case
studies as a way to test and challenge the potentials
of mid-rise urbanism. (SP) Chow

218. Housing, Urbanization, and Urbanism: Design,
Planning, and Policy Issues in Developing Coun-
tries. (4) One and one-half hours of lecture and one
and one-half hours of seminar per week. This seminar
is concerned with the study of housing, urbanization,
and urbanism in developing countries, studying not
only the physical landscapes of settlements, but also
the social, political, and cultural dimensions. This
course’s focus will be on housing, its role in the
processes of urbanization, and its impact on
dwelling patterns in the arena of housing. While
the emphasis of the course will be on the diverse tra-
jectories of developing countries, “First World” expe-
riences will also be used to illuminate the specific
patterns and dimensions and their use in the making
of housing theory and policy. The seminar comple-
ments the series of lectures offered in 111 and City
Planning 111. (SP) Sayyad

219. Seminar on Social and Cultural Bases in
Design. Course may be repeated for credit as topic
varies. Four hours of seminar per week. Formerly 211
and 219A through 219G. (SP)

239A. Design and Computers. (1-4) (F,SP)

239X. Special Topics: Design Theories and Meth-
ods for Doctoral Students. (1-4) Course may be repeated
for credit. Three hours of seminar per week. Must be
taken on a satisfactory/unsatisfactory basis. Required
for doctoral students in the area of Design
Theories and Methods.

243. Seminar in Design Theories and Methods
for Doctoral Students. (1-4) Course may be repeated
for credit. Three hours of seminar per week. Must be
taken on a satisfactory/unsatisfactory basis. Required
for doctoral students in the area of Design
Theories and Methods.

(3) Three hours of seminar per week. A reading and
research seminar surveying the history, social
relations, and cultural ideas of recreation in the Amer-
ican city, including the tensions between home, public,
and commercial leisure settings. Offered alternate
years. (SP) Groth

279. Seminar in the History of Architecture. Course
may be repeated for credit as topic varies. Prereq-
uites: 179 or consent of instructor. (F,SP)

279C. Modern Architecture. (1-4) (F,SP)

279D. History of Housing. (1-4) (F,SP)

279X. Special Topics: Architectural History. (1-4)

281. Methods of Inquiry in Architectural Research.
(4) Four hours of lecture/discussion per week. Pre-
requisites: M.S. or Ph.D. standing or consent of instruc-
tor. This introductory course in methods of inquiry in
architecture research to be required of all those
entering Ph.D. students in the program. The purpose is
to train students in pre-dissertation and pre-thesis research strategies, expose them
to a variety of inquiry methods including the value of schol-
ary research, the nature of evidence, critical reading
as content analysis and writing, presenting and il-
ustrating scholarship in the various disciplines of archi-
tecture. (F,SP)

Architectural Technologies and
Building Performance

Upper Division Courses

140. Introduction to Energy and Environmental
Management. (4) Fifty hours of lecture and 30 hours
of discussion per semester. Prerequisites: Physics or
equivalent, or consent of instructor. Study of the ther-
mal and lighting environments in buildings, with

AC prefix=satisifies American Cultures requirement
B prefix=language course for business majors
C prefix=course satisfies R&AC requirement
H prefix=honor’s course
R prefix=course satisfies R&AC requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
149. Seminar on the Physical Environment in Buildings. Course may be repeated for credit as topic varies. Prerequisites: 140. Special topics such as climatic design, heating, ventilating, air-conditioning systems, lighting and acoustics. For current section offering, see departmental announcement. (F,SP)

149A. Acoustics. (1-4) (F,SP) Staff

150. Introduction to Structures. (4) Forty-five hours of lecture and 30 hours of discussion per semester. Prerequisites: Physics 8A. Study of forces, materials, and structural significance in the design of buildings. Emphasis is on understanding the structural behavior of real building systems. (F,SP) Black

154. Design and Computer Analysis of Structure. (3) Thirty hours of lecture and 45 hours of laboratory per semester. Prerequisites: 150. Design and analysis of whole structural building systems with the aid of finite element and analytical methods. Advanced structural concepts explored in a laboratory environment. (SP) Black

159. Seminar in Building Structures. Course may be repeated for credit as topic varies. Fifteen hours of lecture/seminar per semester. Prerequisites: Consent of instructor. For current section offerings, see departmental announcement. (F,SP)

159X. Special Topics: Building Structures. (1-4) Selected topics such as experimental structures and architectural preservation. (F,SP)

160. Introduction to Construction. (4) Three hours of lecture and 75 hours of laboratory per week. This introduction to the materials and processes of construction takes architecture from design to realization. The course will cover four material groups commonly used in two of the building assembly (structure and envelope): wood, concrete, steel, and glass. You will understand choices available and how materials are conventionally used. By observing construction, students will be able to make informed decisions after the size, scale, and shape of buildings. (F,SP) Staff

240. Advanced Study of Energy and Environmental Issues in Design. (3) Forty-five hours of lecture/seminar per semester. Prerequisites: 140 or consent of instructor. Formerly 240A. This course covers thermal and solar design.

241. Research Methods in Building Sciences. (3) Course may be repeated for credit. Prerequisites: Consent of instructor. Course focuses on a wide range of passive cooling strategies, including solar control, natural ventilation, radiation, evaporation and earth-contact cooling and their treatment in architectural design.

244. The Secret Life of Buildings. (3) Three hours of seminar per week. Prerequisite: seminar address a secret life of buildings related to physical performance. Students examine architectural, lighting, and mechanical systems in existing buildings with attention to energy use, occupant well-being, and architectural spacemaking. The seminar applies a collection of measurement techniques, often involving novel approaches, to reveal operating patterns in the complex environment of buildings. The personal experience students gain in performing the evaluations contributes to the students’ experiential base at a formative time. Analysis of data collected in the field and the conclusions reached to data values given by simulation tools provides a foundation for understanding the space among other abstract tools and standards used by designers in practice. The juxtaposition of design intention and post-occupancy performance can be a powerful learning experience now, as well as preparation for evaluating building performance in the future. (F,SP) Benton

245. Daylighting Analysis Using Physical Models. (3) Three hours of seminar per week. Prerequisites: 140 or consent of instructor. Scale models as a vehicle for the investigation of daylight in architectural design and the role of geometric measurement, qualitative assessment, temporal variability, and presentation technique. (F) Staff

249X. Special Topics in the Physical Environment in Buildings. (1-4) Course may be repeated for credit as topic varies. Fifteen hours lecture/seminar per unit per semester. Prerequisites: 140. Selected topics such as aesthetic design, mechanical systems, natural lighting, artificial lighting, acoustics. For current section offerings, see departmental announcement. (F,SP) Staff

253. Seismic Design and Construction. (3) Forty-five hours of lecture/seminar per semester. Prerequisites: 150. Seismic design and construction techniques for existing buildings and new construction. Topics will include: (1) Basic principles of seismic design and building performance, (2) retrofit of existing buildings and evaluation of structural and functional obsolescence, and (3) design and planning for disaster recovery and rebuilding. The course will use the campus construction as a laboratory for evaluating structural design and construction. Each research paper and seminar participation are the basis for grading.

256. Structural Design in the Studio. (1-3) Three hours of seminar per week. Prerequisites: 150 or equivalent. Teaching structures to architecture students on their own turf: in a studio design. The course is organized around weekly desk reviews and assignments for students enrolled in a 201 design studio or thesis. The reviews and assignments focus on the structural issues of the students’ projects. A central goal is to make the students understand the structural issues as they relate to design and to help them become comfortable with structural concepts so they can begin to integrate the structure and architecture. The course can be taken for 1, 2, or 3 units, depending on the amount of time a student wishes to commit to it. A final report showing the evolution of each student’s project with clear reference to how structural understanding influenced design decisions is required of all students regardless of units taken. Enrollment strictly limited to 10 students. (SP) Black

259. Special Topics: Building Structures. (1-4) Course may be repeated for credit as topic varies. Fifteen hours of seminar per unit per semester. Prerequisites: Consent of instructor. For current section offerings, see departmental announcement. (F,SP) Staff

259X. Special Topics: Building Structures. (1-4) Special topics such as experimental structures and architectural preservation. (F,SP) Staff

260. Introduction to Construction, Graduate Level. (3) Three hours of seminar per week. Prerequisites: Graduating standing or consent of instructor. This course is a graduate-level course concerned with the basics of construction, including common practices in California and the major issues such as forms, materials, legal context, cost issues, and other related topics. Students will learn through site observation, textbook study, lectures, and regular individual assignments, quizzes, and tests for the architectural representation of construction or other hands-on work. Graduate students from architecture, real estate, and engineering are welcome. (F) Buntrock

264. Off-Site Fabrication. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 150 or consent of instructor. This seminar looks at the implications of off-site fabrication in architecture: consistent, protected environments; worker efficiency and safety; trades are easy to coordinate; cheaper, more predictable, for shorter periods of time; and the cost can be shortened; and completion dates may be more predictable. Off-site fabrication can allow for increased refinement and trial assemblies. However, it may also create monotonic sameness when the processes and results are not considered with care. (F) Buntrock

265. Japanese Craft and Construction. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 150, 160, or consent of instructor. The seminar focuses on appropriate architecture and craft and construction play in Japanese architecture and applies these lessons to the evaluation of an exemplary recent building having unusual technical features. Buildings are expressions of theoretical and technical basis. This course is concerned with cultural and economic forces; Japanese architecture is regarded as particularly innovative. In studying a system where there is an emphasis on collaboration, both in the building of structures and in the values of North American systems of architectural production. (SP) Buntrock

269X. Special Topics: Construction and Materials. (1-4) One to four hours of seminar per week. Selected topics such as construction management implementation and geological hazards to construction. For current section offerings, see department web site. (F,SP) Staff

Special Studies Courses

Upper Division Courses

198. Special Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the Department of Courses and Curricula’ section of this catalog. Must be taken on a passed/not passed basis. Studies developed to meet individual needs. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment is restricted; see regulations in this catalog. Studies developed to meet individual needs. (F,SP)

Graduate Courses

296. Directed Dissertation Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Advance ment to candidacy for the Ph.D. Open to qualified students who are directly engaged in the doctoral dissertation. (F,SP) Staff

298. Special Group Study. (1-4) May be repeated for credit up to unit limitation. Sections 1-3 to be graded on a satisfactory/unsatisfactory basis. Sections 4-10 to be graded on a letter grades basis. This course is to be introduced by instructor or students. (F,SP)

299. Individual Study and Research for Master’s and Doctoral Students. (1-12) Course may be repeated for credit. Individual studies including reading and individual research under the supervision of a faculty adviser and designed to reinforce the student’s background in areas related to the proposed degree. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. This course may not be used for units or residence requirements for the doctoral degree. (F,SP) Staff

Professional Courses

300. Seminar in the Teaching of Architecture. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. May be offered for first-time graduate student instructors, especially those working in studio and lab settings. The class covers a range of issues that normally come up when teaching studio courses, and includes discussions and others suggestions regarding how to work well with other graduate student instructors and faculty, and how to manage a graduate student instructor’s
role as both student and teacher. The greatest bene-fit of this class comes from the opportunity to explore important topics together. Using a relatively light but provocative set of readings, the seminar will explore the issues raised each week. There will be one assignment intended to help students explore their own expectations as educators. (F) Staff

Visual Studies

Upper Division Courses

180A-180B. Introduction to Visual Studies: Word and Image. (4,4) Thirty hours lecture and 90 hours studio per semester. Prerequisites: Environmental Design 11A-11B or consent of instructor; A is prerequisite to B. Projects in graphic form, color, and word-image relationships.

181. Introduction to Photography. (4) Thirty hours lecture and 75 hours studio per semester. Learn the classic methods of photography using film, paper, and the darkroom. The course will cover 35mm camera operation, black and white film, and print processing, along with essential aesthetic considerations. There will be hands-on demonstrations, laboratory sessions, slide shows, and in-class critiques, all designed to facilitate progress of assigned projects. There will be an introduction to digital technology. Historical and contemporary issues in photography will be discussed. Each student will finish class with a portfolio of photographs. (F,SP)

185. Selected Topics: Word and Image. Course may be repeated for credit as topic varies. Prerequisites: Environmental Design 11A-11B. Studio sections in areas such as calligraphy, the history of letter forms, and typography. For current offerings, see the departmental announcement.

185A. Visual AutoBiography. (4) Six hours of lecture per week. Prerequisites: Consent of instructor. Since visual and literary studies have historically been viewed as separate disciplines, we will use theories from both to study those forms of self-representation that defy disciplinary boundaries, or what we call "visual autobiography." The course aims to help students become conversant with the elements of alphabetic literacy (reading and writing) and visual literacy (observing and making) in order to develop a third distinctive textual/visual literacy. Also listed as Undergrad Interdisciplinary Studies C135, American Studies C174, and English C143V. This course satisfies the Integrative Studies C135, American Studies distinctive textual/visual literacy. Also listed as Undergrad Interdisciplinary Studies C135, American Studies C174, and English C143V. This course satisfies the American Cultures requirement.

185X. Special Topics: Word and Image. (1-4)

186. Selected Topics: Photography. Course may be repeated for credit as topic varies. Prerequisites: Environmental Design 11A-11B. Studio sections in Photography as an Art Form, Documentary Photography, Light and Motion Studies, Artificial Lighting Photography. For current section offerings, see departmental announcement.

186A. Documentary Photography. (1-4) Fifteen hours of lecture/seminar or 60 hours of studio per unit per term for eight weeks. (F,SP)

186B. Photography as an Art Form. (1-4) (F,SP)

186X. Special Topics: Photography. (1-4) (F,SP)

187. Selected Topics: Drawing. Course may be repeated for credit. Prerequisites: Environmental Design 11A-11B.

187A. Freehand Drawing. (1-4) (F,SP)

187X. Special Topics: Drawing. (1-4) (F,SP)

187Y. Field Studies in Visual Studies. (1-4) No more than 4 units allowed each semester. Course may be repeated for credit. Must be taken on a passed/not passed basis. Supervised experience relevant to specific off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. See General Catalog regarding unit limitation toward the degree. (F,SP)

188. Special Group Study. (1-4) No more than 4 units allowed each semester. Course may be repeated for credit. Must be taken on a passed/not passed basis. Studies developed to meet needs. See General Catalog regarding unit limitation toward the degree. (F,SP)

189. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment is restricted by regulations listed in General Catalog. Studies developed to meet individual needs. (F,SP)

Graduate Courses

280. Advanced Visual Studies. (1-3) Course may be repeated for credit as topic varies. Fifteen hours of lecture/unit per semester. Prerequisites: 181, 186. Advanced work in visual studies and photography. (F,SP)

289. Special Group Study. (1-5) No more than 5 units allowed each semester. Course may be repeated for credit. Special group studies on topics to be introduced by instructor or students. (F,SP)

299. Individual Study and Research for Master’s Students. (1-5) Course may be repeated for credit. One unit will be assigned for each 4 hours of student effort per week. Individual studies including reading and individual research under the supervision of a faculty adviser and designed to reinforce the student’s background in areas related to the proposed topic. (F,SP)

Art and History of Art

(College of Letters and Science)

Practice of Art

Department Office: 345 Kroeber Hall, (510) 642-2582

Chair. Prof. Hertha D. Sweet-Wong

Professors

Richard B. Shaw, M.F.A. (Emeritus)

Katherine D. Shenoy, M.F.A. (Emeritus)

Robert L. Hartman (Emeritus), M.A.

Anne L. Healy (Emeritus), B.A.

Karl A. Kasten (Emeritus), M.A.

James F. Meichen (Emeritus), M.F.A.

George J. Miyasaka (Emeritus), M.F.A.

Mary L. O’Neal (Emeritus), M.F.A.

David W. Simpson (Emeritus), M.A.

Brian A. Wall (Emeritus)

Associate Professors

Greg Nemeyer, M.F.A.

Anne Waltz, M.F.A.

Jerrold C. Ballaine (Emeritus), M.F.A.

Assistant Professor

Brody Reiman, M.F.A.

Professor-in-Residence

Squeak Carnwath, M.F.A.

Department Overview

Four goals underlie the teaching in the Department of Art:

(1) to advance the body of knowledge of human experience through aesthetic investigation;
(2) to help students learn to think visually;
(3) to help students understand the strategies that artists have devised to deal with aesthetic problems in both traditional and nontraditional methods of artmaking; and
(4) to help students develop a creative intelligence through practicing a visual arts discipline.

While the undergraduate major is made largely up of studio courses, it also requires at least three courses in practice of art. An art student should be familiar with ways in which visual ideas have been manifested and developed in the past and how specific notions have affected the perception that human beings have of themselves and their circum-

Graduate Program

The Department of Art offers a two-year program of study leading to the M.F.A. degree in the practice of art. The B.A. or B.F.A. in studio art or its equivalent is prerequisite to the M.F.A. degree.

For the M.F.A., students must complete a total of 64 units that include six graduate seminars, one 20th-century art history course, one upper-division course and four studio and independent study courses. Students must also produce a comprehensive body of creative work to be exhibited in the final M.F.A. exhibition.

Further information about this program may be obtained from the Art Office, 345 Kroeber Hall. Lower Division Courses

8. Introduction to Visual Thinking. (4) One hour of lecture and six hours of studio per week. Formerly 8A-8B. A first course in the language, processes, and media of visual art. coursework will be organized around weekly lectures and studio problems that will introduce students to the practice of art making and visual thinking. (F,SP) Staff

12. The Language of Drawing. (4) Three hours of lecture and six hours of studio per week. Prerequisites: 8. A study of drawing as a tool for articulating what the eyes, hand, and mind discover and investigate when coordinated. Some sessions will be devoted to

Work by students is featured in the exhibitions of the Worth Ryder Art Gallery, an adjunct educational facility that is open to the public.

Major Program

Prospective art majors should contact the Art Practice Department regarding their application to the major.

Transfer Students: If you are transferring to Berkley with no previous college-level art courses, you are subject to the new art major. All new majors must complete Art 8 and 12, and two of the following: 13, 14, 16, and 23AC. You must also complete six upper-division studio courses, and three specified courses in history of art (see below).

Lower Division: Art 8 and 12 (required of all Art majors), and two from the following: 13, 14, 16, and 23AC.

Upper Division: Art 117 or 118, and five additional upper division courses in practice of art.

History of Art: A minimum of three courses, one chosen from each of the following three course clusters:

a. Any one lower division History of Art class;

b. Twentieth-Century Art: HA 180 through HA 190 series;

c. One upper division art history course of the student’s choosing.

With the consent of the major adviser, a student may be given credit toward the major for up to two art-related courses taken outside the department, e.g., Set Design (Theater, Dance, and Performance Studies), Photography (College of Environmental Design), etc.

Honors Program in the Practice of Art. Students with an overall GPA of 3.5 or higher who are in their senior year may, with the permission of a regular faculty member, enroll in the honors program. This is an independent study course, taken for a minimum of one semester and a maximum of two semesters and comprising a minimum of four units and a maximum of 8 units. A final grade is given at the completion of the program. Honors courses count toward the art major as they are taken for a letter grade.

For current offerings, see the departmental announcement. Some sessions will be devoted to...
102. Approaches to Painting. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 13 or equivalents. Inquiry into concepts of order, process, and content as related to human experience. While faculty contact with students is highly individualized, the course involves group critiques and lectures as well as assigned field trips. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

117. Drawing and Composition. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8 and 12; and one from 13, 14, 16, or 23, or equivalents. Emphasis on the human figure seen in the context of pictorial space, and perception of black and white, and color. Various media, 118 or 117 is required of all art majors. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

118. Figure Drawing. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 16, or equivalents. An opportunity to discover what an artist can do with an etching press and a familiarity with such processes as etching, drypoint, aquatint, color, and monotype printing. The difference in the ways that these mediums enhance and condition your ideas will be made clear through individual and group critiques. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

120. Approaches to Printmaking: Intaglio. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 16, or equivalents. An opportunity to discover what an artist can do with an etching press and a familiarity with such processes as etching, drypoint, aquatint, color, and monotype printing. The difference in the ways that these mediums enhance and condition your ideas will be made clear through individual and group critiques. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

122. Approaches to Printmaking: Lithography. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 16, or equivalents. In the course of making lithographs, you will be encouraged to find an aesthetic direction of your own. Your instructor will also help you develop skill in using both stone and metal plates. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

123. The Language of Printmaking-Screenprinting. (4) Course may be repeated for credit. Six hours of lecture and three hours of studio per week. Prerequisites: 8, 12, and 16, or equivalents. One from 13, 14, 16, or 23, or equivalents. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

99. Supervised Independent Study. (1-2) One to two hours of independent study per week. Must be taken on a passed/not passed basis. This course will be a rubric for all individual credit independent study courses in Art Practice that concentrate on the practical aspects of art production. Some students will study gallery work by participating in every phase of art exhibitions. Other students will work to hanging and insuring the art. Other students will learn concepts, skills, and information they can use in their major courses. All students gaining credit from these courses will have their work critiqued in writing and in two meetings. In both meetings the students will have opportunity to discuss the impact that their work has had on them. (F,SP) Staff

Upper Division Courses

124. Advanced Projects in Printmaking. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 16, or equivalents. Course is geared toward constructing objects, forms, letter structures to respond to the methods that they have used to expand them. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

130. Approaches to Sculpture: Concept and Construction. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 14, or equivalents. This class will have more advanced instruction in fabrications, emphasizing the use of wood and metal shops. Architectural considerations, physical experience of space, and innovative sculptural practices will be explored. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

132. Approaches to Sculpture: Ceramics. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 14, or equivalents. An opportunity to learn the many ways of shaping and giving form to wet clay, then making it permanent by firing it. Illustrated talks will examine the ideas that have engaged the ceramic disciplines and problems that they have used to expand them. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

133. Approaches to Sculpture: Meaning in Material. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 14, or equivalents. This class will investigate the possibilities and potentials of sculptural material, both physically and conceptually. We will look at how a deeper exploration of the technical requirements of art practice while questioning what methods and materials are considered non-traditional. We will discuss multiple applications as a means of mediating ideas in space, including sculpture, installation, video, photography, and public exchanges. This class will have more advanced instruction in fabrications, including the wood and metal shops. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

137. Advanced Projects in Ceramic Sculpture. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 14, or equivalents. Students who are experienced in clay may enroll in this course to continue developing their ideas and their technical command of ceramic materials and processes. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

138. Approaches to Sculpture: Installations. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 14, or equivalents. In this class, we will consider sculptural issues of (and beyond) the object itself, notions of “site specific,” and whether an object is distinct from its environment or is part of it. We shall question issues of scale, placement, context, and public interaction. Students will engage with a variety of off campus, with drawings and written proposals being an integral part of all projects. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

141. Temporal Structures: Video and Performance Art. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and one from 13, 14, 16, 23, or equivalents. Projects are aimed at understanding and inventing ways in which time and change can become key elements in an artwork. Regular screenings of professional tapes will illustrate uses of the mediums and provide a historical context. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff
142. New Genres. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8 and 12; and one from 13, 160, or 175. A survey intended to familiarize you to the nature and potential of such non-traditional tools for artmaking as performance, video, and audio-tape. Lectures and demonstrations introduce students to techniques and varied applications. (F,SP) Staff

160. Special Topics in Visual Studies. (4) Course may be repeated for credit. Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Topics of concern to the instructor, usually related to current research, which may fall outside the normal curriculum or be of more restricted content than regular studio courses. An opportunity to investigate topics and mediums on an ad hoc basis when there is a compelling reason to do so, providing there is no other course that deals with these concerns. Primarily intended for advanced undergraduates and graduates in Art Practice but open to others. For special topics and enrollment see listings outside of 238 Kroeber. (F,SP)

162. Issues in Cultural Display: Studio and Post-Studio Art Practices. (4) Four hours of lecture and two hours of discussion per week. Prerequisites: 8. This is a seminar class designed to engage in "close readings" of contemporary art-making and curatorial practices. The goals of this studio visit and/or curators, the course examines the practical methods, historical origins, philosophical roots, and political and aesthetic implications of each maker's practice as well as contemporaneous and historical discourse (though not be limited to) issues concerning the interaction of aesthetics and ethics; culture and capital; copyright law; art and craft; singular vs. collective authorship. Walsh

165. Art, Medicine, and Disabilities. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio and/or supervised research and/or internship per week. This course will examine how visual artists have responded to illness and disability. Visual representations of disability and healing, as well as the expressive work of visual artists working from within the personal experiences of disability. In other words, we will look at disability both as a subject and a source of artistic creation. Several topics, historical and contemporary, will be explored. Students will complete either a semester-long internship with an arts and disability organization, a research paper, or a creative project. (F,SP) Sherwood

171. Digital Video: The Architecture of Time. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 23, or equivalents. This hands-on studio course is designed to present students with a foundation-level introduction to the skills, theories, and concepts used in digital video production. Nonlinear and non-destructive editing methods used in digital video are defining new "architectures of time" for cinematic creation and experience, and offer new and innovative possibilities for authoring new forms of the moving image. Through direct experimentation, this course will explore students' relationship to the moving image, film and video history, theory, terminology, field, and post-production skills. Students will be required to technically master the digital media tools introduced in the course, as well as new possibilities digital video brings to time-based art forms. Also listed as Film Studies C185. (F,SP) Staff

172. CGI Animation Studies. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, 23, or equivalents. This advanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production, and are interested in the interpretative, theoretical, technical and creative research topics in digital video production. Each week will include relevant readings, class discussions, guest speakers, demonstration of examples, and studio time for training and working on student assignments. (F,SP) Staff

174. Sound Art. (4) Course may be repeated for credit. Six hours of lecture and three hours of studio per week. Prerequisites: 8, 12, 23, or equivalents. This advanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production, and are interested in the interpretative, theoretical, technical and creative research topics in digital video production. Each week will include relevant readings, class discussions, guest speakers, demonstration of examples, and studio time for training and working on student assignments. (F,SP) Staff

175. Sound Design - Audio Visual Arts. (4) Course may be repeated for credit. Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 23, or equivalents. This advanced studio course is designed to meet the needs of students who have mastered basic skills and concepts involved in digital video production, and are interested in the interpretative, theoretical, technical, and creative research topics in digital video production. Also listed as Film Studies C187. (F,SP) Staff

176. Advanced Computer Graphics Production. (4) Three hours of lecture and six hours of studio per week. Prerequisites: 8, 12, and 23, or equivalents. This course is designed for students who have mastered basic skills and concepts involved in digital video production, and are interested in the interpretative, theoretical, technical, and creative research topics in digital video production. Also listed as Film Studies C185. (F,SP) Staff

177. Game Design Methods. (4) Two hours of lecture and two hours of seminar per week. Prerequisites: 23AC, 172, and Film 25A. This course offers an introduction to game design and game-based learning, and will culminate in implementations of student game designs. Game studies has five core elements: (1) the study of games as culture generators; (2) the study of play and interactivity; (3) the study of games as symbolic systems; (4) the study of games as artifacts; and (5) the design of games. One process which is crucial to all these elements is to play. We will study the core elements of game studies through play, play tests, and the study of people playing. There will also be a close examination of classical game studies as well as practice-oriented texts. The final exam for this course is to design, test, and evaluate a playable game. Also listed as Film Studies C181. (F,SP)

185. Senior Projects/Professional Practices. (4) Three hours of lecture and four hours of seminar per week. Prerequisites: Senior level students only. This course provides students with a foundation for understanding their work within a cross-disciplinary context. Through critique, readings, guest artists, and field trips, students will explore the practical and conceptual components of their own media and practice within a broader discipline of artistic production. In addition to this focused attention on the critique process, the class with address the ongoing needs of supporting one's work within a community of artists, arts professionals, and arts organizations. Each student will work towards developing the most effective tools for communicating their work to these broader audiences using strategies that are appropriate/effective for their ideas, media, and audience. (F,SP) Staff

H195A-H195B. Special Study for Honors Candidates. (4,4) Course may be applied toward major requirements. Hours to be arranged. Prerequisites: Eligibility for admission to the Honors Program. Honors students are required to take three units of H195A. They may elect to take an additional three units (H195B) the following semester. (F,SP) Staff

198. Directed Group Study. (1-3) Course may be repeated for credit. Three hours of group study per unit per week. Must be taken on a pass/not pass basis. Upper division standing. This is a student-initiated course to be offered for academic credit. The subject matter will vary from semester to semester and will be taught by the student facilitator under the supervision of the faculty sponsor. Topics to be related to art practice. (F,SP) Staff

199. Supervised Independent Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Credit does not satisfy major requirement for M.F.A. students. Must be taken on a pass/not pass basis. (F,SP) Staff

Graduate Courses

218. Seminar: Theory and Criticism. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing and consent of instructor. Weekly meetings will provide a forum for the discussion of issues related to assigned readings in the fields of esthetics, theory and art criticism. (F,SP) Staff

290. Independent Study. (4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Graduate standing and consent of instructor. Individual projects for graduate students with one assigned instructor. (F,SP) Staff

294. Seminar for M.F.A. Students. (4) Course may be repeated for credit. Three hours of seminar per
The Major

The major offers an introduction to the history of the visual arts in Western and Asian culture as well as the opportunity to do specialized study in areas of the student's choice. Fundamentally, a humanities major and often multi-disciplinary in approach, the field provides majors with essential training in those perceptual and historical, research and critical skills needed for many specialized professions. Majors frequently go on to careers in business, law, or the arts as well as graduate study in the history of art and careers in teaching, museum work, and conservation.

Within the broad field of art history each undergraduate major develops an area of special competence. Certain special study courses (History of Art 193, 194, H195, C196W, 199), and some special programs. Advisees should be made well in advance of deadlines.

Transfer students. Major advisors may credit courses taken at the institutions toward completion of the history of art major at Berkeley. This process is independent of the transfer of credit toward completion of L&S requirements for graduation. Transfer students should come to their first departmental advising appointment with copies of transcripts from all institutions they have previously attended as well as information about the content and requirements of the courses they wish to transfer. See also residency requirements under "Special Restrictions" below.

AP Credit. Course credit may be given to students who receive a score of four or five on the Advanced Placement Examination in history of art. The credit may be used in place of either History of Art 10 or 11 to satisfy one of the lower division course requirements in the major.

Suggestions for All Majors:

(1) Foreign languages are not required in lower or upper division courses but a reading knowledge of German, French, Italian, or Latin may be helpful in seminars and other research courses. Students should take graduate study in the history of art are urged to develop a reading knowledge of German and French or Italian as early as possible. Special language requirements pertain for graduates in Ancient Art.

(2) Recommended course load in the history of art will vary according to the student, course level, and individual course requirements. In general, no more than two history of art courses per semester are recommended.

(3) Special programs, such as study abroad, internships, and double majoring, often require considerable advance planning. If you are interested in any of these, discuss your plans early with your adviser. Note: Courses taken through study abroad programs are discussed in advance with an adviser and will not be formally approved until after completion and satisfactory documentation has been submitted. In order for courses taken abroad to count toward major requirements, the student must be enrolled in the course, the work demanded, and your performance must all meet Berkeley upper division standards. Your performance will be evaluated by your major adviser to determine whether major requirements have been satisfied.

(4) Students with special intellectual or pre-professional interests may wish to enroll in independent study or research courses (193, 199), in a second seminar (192), or in additional, related courses in other departments. These students should discuss their interests with their advisers as early as possible.

Special Restrictions:

(1) Letter grade: All courses to be counted toward completion of the major must be taken for a letter grade except for the lower division studio art course and Art History 194 and 199, which may only be taken pass/No pass.

(2) GPA: An overall GPA of 2.0 (C) is required in all courses to be applied to the major.

(3) Summer school: Only one summer school course at Berkeley or elsewhere may be credited toward completion of the major.

(4) Residency: A minimum of five upper division courses must be taken in the Department of History of Art at Berkeley, of which one must be a seminar.

History of Art

Office: 416 Doe Library #6020, (510) 643-7290
ls.berkeley.edu/dept/hart
Chair: Patricia Berger, Ph.D.
Professors
Timothy J. Clark, Ph.D. London University, Modern art
Whitney Davis, Ph.D. Harvard University, Ancient, modern, and theory of art history
Margareta Lovell, Ph.D. Yale University, American and Slavic art
Loren Partridge, Ph.D. Harvard University, Italian Renaissance
Andrew F. Stewart, Ph.D. Cambridge University, Greek and Roman art
Anne M. Weisgerber, Ph.D. Harvard University, Modern art
Joanna Williams, Ph.D. Harvard University, Indian and Southeast Asian art
David H. Wright, Ph.D. Harvard University, First Millenium AD
†Svetlana Alpers (Emerita), Ph.D.
†James Cahn (Emeritus), Ph.D.
Jerome Chwierski (Emeritus), Ph.D.
Peter H. Selz (Emeritus), Ph.D. D.F.A. (hon.)
Associate Professors
Patricia Berger, Ph.D. University of California, Berkeley, Chinese art
Marian Feldman, Ph.D. Harvard University, Art history, Near Eastern studies
Darcy Grimaldo Griswold, Ph.D. University of Michigan, European art
Christopher Halliet, Ph.D. University of California, Berkeley, Roman art
Elizabeth Honig, Ph.D. Yale University, European art, 1400-1700
Gregory P. Levine, Ph.D. Princeton University, Japanese art
todd olin, Ph.D. University of Michigan, Early modern European art
Assistant Professor
Beate Fricke, Ph.D. University of Trier, Medieval art

Prerequisites: Admission to the M.F.A. program. Studio work emphasizing various aspects of form. Group criticism. Intended especially for M.F.A. candidates. (F,SP) Staff

295. Supervised Independent Study for Graduate Students. (1-4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Graduate standing and consent of instructor. Directed group study in special problems, group research, and/or interdisciplinary topics. (F,SP) Staff

298. Directed Group Study. (4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Graduate standing and consent of instructor, graduate adviser, and Department Chair. Special projects by graduate students undertaken with a specific member of the faculty. (F,SP) Staff

Professional Courses

301. The Teaching of Art: Practice. (1) Course may be repeated for credit. One hour of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Utilizing aspects of pedagogical and andragogical teaching, the interactive lecture, collaborative learning, simulations, and brainstorming-freewriting, this semester-long seminar will focus on these various integrative teaching approaches, to facilitate communication in the diverse and wide-ranging arena which is fine arts today. The course aims, instructional methods, grading standards, and special problems in the teaching of art practice. (F,SP) Staff

Special Policy

If you are considering declaring a major in the history of art, you are urged to develop a reading knowledge of German and French or Italian as early as possible. Special language requirements pertain for graduates in Ancient Art.

Advantages of Declaring Early. Majors who declare early, especially in the sophomore year, enjoy several advantages: (1) a more thorough preparation for seminars and time to study more closely with several members of the faculty; (2) greater flexibility in coordinating major requirements with College of Letters and Science (L&S) requirements and in planning a sequence of courses that allows for special courses or programs of study, e.g., study abroad, curricular internships, independent study, a double-major, and the Honors Program; and (3) time for a generally higher level of study in the senior year and opportunity to expand, enrich, and prepare for diverse career opportunities.

Advising. Declared majors must see an undergraduate adviser at least once each semester during the registration period. These advising meetings will focus on your advising appointment, work closely with a faculty member who can help them develop an overall program of study well suited to individual strengths, weaknesses, and career goals. The adviser also apprise majors of special courses and opportunities, both in the Department of History of Art and elsewhere.

Departmental undergraduate advisers do not administer or approve coursework or degree requirements in the College of Letters and Science other than the requirements of the major. For L&S requirements, students should make an appointment to see an L&S adviser in 113 Campbell.

Appointments with major advisers. Each semester during the Tele-BEARS enrollment period every art history major must see an adviser to discuss his or her program of study and to obtain a special adviser code in order to gain access to the Tele-BEARS system. Appointments are made by signing up on the blue sheets posted outside the major adviser’s office. Special exceptions for office hours are held during this enrollment period. Adviser codes will only be given out over the phone or via e-mail if a student is studying abroad or is physically incapacitated. The office staff cannot give out adviser codes. Note: Advisers are not available during the summer and winter holidays.

In addition to general advising and coursework approval, advisers must approve all changes in registration, including withdrawals and add-drops. Certain special study courses (History of Art 193, 194, H195, C196W, 199), and some special programs. Appointments should be made well in advance of deadlines.

Transfer students. Major advisors may credit courses taken at the institutions toward completion of the history of art major at Berkeley. This process is independent of the transfer of credit toward completion of L&S requirements for graduation. Transfer students should come to their first departmental advising appointment with copies of transcripts from all institutions they have previously attended as well as information about the content and requirements of the courses they wish to transfer. See also residency requirements under "Special Restrictions" below.

AP Credit. Course credit may be given to students who receive a score of four or five on the Advanced Placement Examination in history of art. The credit may be used in place of either History of Art 10 or 11 to satisfy one of the lower division course requirements in the major.

Suggestions for All Majors:

(1) Foreign languages are not required in lower or upper division courses but a reading knowledge of German, French, Italian, or Latin may be helpful in seminars and other research courses. Students should take graduate study in the history of art are urged to develop a reading knowledge of German and French or Italian as early as possible. Special language requirements pertain for graduates in Ancient Art.

(2) Recommended course load in the history of art will vary according to the student, course level, and individual course requirements. In general, no more than two history of art courses per semester are recommended.

(3) Special programs, such as study abroad, internships, and double majoring, often require considerable advance planning. If you are interested in any of these, discuss your plans early with your adviser. Note: Courses taken through study abroad programs are discussed in advance with an adviser and will not be formally approved until after completion and satisfactory documentation has been submitted. In order for courses taken abroad to count toward major requirements, the course must be enrolled in the course, the work demanded, and your performance must all meet Berkeley upper division standards. Your performance will be evaluated by your major adviser to determine whether major requirements have been satisfied.

(4) Students with special intellectual or pre-professional interests may wish to enroll in independent study or research courses (193, 199), in a second seminar (192), or in additional, related courses in other departments. These students should discuss their interests with their advisers as early as possible.

Special Restrictions:

(1) Letter grade: All courses to be counted toward completion of the major must be taken for a letter grade except for the lower division studio art course and Art History 194 and 199, which may only be taken pass/No pass.

(2) GPA: An overall GPA of 2.0 (C) is required in all courses to be applied to the major.

(3) Summer school: Only one summer school course at Berkeley or elsewhere may be credited toward completion of the major.

(4) Residency: A minimum of five upper division courses must be taken in the Department of History of Art at Berkeley, of which one must be a seminar.
(5) Approval of other courses: Except for specific courses named as co-requisites, courses taken in other departments for credit in the major must be approved in advance by the major adviser.

Departmental and University Honors

Honors in art history: Students with at least a 3.7 GPA in a 3.5 GPA overall are eligible for admission into the honors program in the Department of History of Art. Candidates for honors are required to complete satisfactorily, within their senior year, an honors thesis consisting of at least two semesters of academic work under faculty supervision (usually a seminar, directed research, or independent study course in the first semester plus, in the second semester, an H195 senior thesis). The student who has completed the program will graduate with honors, high honors, or highest honors in the major depending upon their final GPA in all upper division courses taken to fulfill the major requirements.

University honors are awarded upon the recommendation of the Department of Art History to students on the basis of overall GPA. Again, there are three categories—honors, high honors, and highest honors. GPA requirements for both department and university honors change each year; in 2003-04, they were 3.644, 3.783, and 3.911.

The Maybelle M. Toombs Awards. These awards recognize the potential talent and ability of students based upon their record in the major up to the junior year. The award is based upon the cumulative GPA of two semesters of continuing academic work under faculty supervision (usually a seminar, directed research, or independent study course in the first semester plus, in the second semester, an H195 senior thesis). The student who has completed the program will graduate with honors, high honors, or highest honors in the major depending upon their final GPA in all upper division courses taken to fulfill the major requirements.

The minor program is designed to provide a structured and broad program for those students majoring in other departments with a strong interest in the history of art. The requirements for the minor program are as follows:

1. Breadth requirements: Five upper division courses, covering at least three of the six fields of art history taught in the department: Ancient; Medieval; Renaissance; Baroque; and Modern. One of the five courses may be a seminar (192); the rest must be lecture courses.

2. Recommended: Minor program students are also strongly urged to take two lower division survey courses (39.1, 51, 62, etc.) and one course in the Practice of Art, preferably drawing.

3. Residency requirements: A minimum of three of the required upper division courses must be taken at Berkeley.

4. Grades: All courses to be applied toward the minor program must be taken for letter grade. An overall GPA of 2.0 is required in all courses applied to the minor.

Note: Work for the minor must be completed within the 130-unit minimum limit for graduation. Courses accepted for a minor program may also satisfy the College of Letters and Science breadth and major requirements. A maximum of one course may be used.

Lower Division Courses

R1B. Reading and Writing about Visual Experience. (4) Three hours of lecture per week. Prerequisites: UC Entry Level Writing Requirement, English 1A, or equivalent. Formerly 1B. How do mechanisms of perception make visual responses to visual art? What is at stake when words describe images? By means of intensive looking, thinking, speaking, and writing, this course introduces the student to a series of problems and issues in the description and analysis of works of art. Because the course is also an introduction to the historical study of art, it is intended for students with no previous coursework in the field. Satisfies the second half of the Reading and Composition requirement. (F,SP) Staff

10. Introduction to Western Art: Ancient to Medieval. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: May follow 1B or prerequisite 11, though neither is required. Formerly 10A. An introduction to the art of ancient Greece, Rome, and the early Middle Ages. Works of painting, sculpture, and architecture are presented chronologically and interpreted within their particular historical circumstances. Lectures, readings, and discussion tools include art historical methods of viewing, thinking, lectures, and calligraphy. Lectures, readings, and discussions will introduce students to various systems of Chinese thought, modes of visual analysis, and art historical method. (F,SP) Williams

11. Introduction to Western Art: Renaissance to the Present. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: May follow 1B or prerequisite 10, though neither is required. Formerly 10B. An introduction to the historical circumstances and visual character of Western art from the Renaissance to the present. Not a chronological survey, but an exploration of topics and themes central to this period. For example: What tasks did painting and sculpture perform in the past? For whom, at whose expense? How do the rise of landscape painting, the cult of the artist, and the new emphasis on the nude relate to the emergence of modern society? Do stylistic labels like Classicism, Realism, Modernism help us answer such questions? This course is recommended for potential majors and for students in other disciplines, both humanities and sciences.

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

29. Prehistoric and Archaic Art. (4) Three hours of lecture per week. Introduces prehistoric and archaic arts (art in Paleolithic, Neolithic, prehistoric societies generally) and early phases of civilization, including cave art (Lascaux), petroglyphs or rock art, megalithic construction (Stonehenge), and ritual objects (the Namer Palette). Examples drawn from Europe, northern and southern Africa, Egypt and the ancient Near East, northern and central Australia, and the Southwest and Northwest Coast in North America. (F,SP) Staff

30. Art of India. (4) Three hours of lecture and one hour of discussion per week. This course surveys the arts of India from 2000 BC to the present, including painting, sculpture, and architecture. It treats prehistoric material (Indus Valley), Buddhist sculpture and painting, Hindu temples and their images, miniature painting, and modern art. Art will be considered in relation to its political, social, and cultural contexts. The course will normally focus on major monuments, seen from multiple viewpoints, or upon problems and issues that transcend the art of the particular society or parts of other parts of the world (or differentiate it from them). No previous background is assumed, and students will be introduced to basic art-historical methods of viewing and analysis. (F,SP) Williams

34. Art of China. (4) Three hours of lecture and one hour of discussion per week. An introduction to the arts of China, designed for newcomers to the history of art or to the study of Chinese culture. Lectures will survey six millennia of Chinese art thematically and historically, including the early Neolithic period through the Tang dynasty (4th M. BCE-10th C. CE), Buddhist and Daoist ritual arts, and painting and calligraphy. Lectures, readings, and discussions will introduce students to various systems of Chinese thought, modes of visual analysis, and art historical method. (F,SP) Berger

35. Art and Architecture in Japan. (4) Three hours of lecture and one hour of discussion per week. This course surveys Japan’s art and architecture in Japan. It is intended for newcomers to the history of art and/or to the study of Japanese history and culture. Lectures will proceed chronologically, beginning with the archetypal objects of prehistoric Japan, the Neolithic Jomon, and ending with the popular graphic arts of the 17th to 19th centuries and modern transformations of art. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a seminar-setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

41. Introduction to Greek and Roman Art. (4) Three hours of lecture and one hour of discussion per week. This course provides an introduction to the major arts of Greece and Roman art and architecture. Participants will learn to acquire the perceptual and critical skills necessary for understanding these works; to interpret them within broader visual traditions, historical contexts, and social/cultural issues. Wherever possible, newly discovered work will be illustrated and discussed. (F,SP) Stewart

51. Introduction to Medieval Art. (4) Three hours of lecture and one hour of discussion per week. A selective thematic approach to medieval arts from the decline of the Roman empire to the beginnings...
of Early Modern period. The emergence of new artis- 
tical media, subject matter, and strategies of making 
art in the expression of authority and legitimacy, and artis-
tic interconnections between cultures. Collections on 
the rich visual culture in 17th-century Holland that 
expressed the ideals, aspirations, and identity of the 
first bourgeois capitalist society. Rembrandt, Vermeer, 
and others in the context of contemporary aesthetic 
issues, such as narrative strategies, gender and the body, 
states of address in sculpture and painting, political propa-
ganda in art, and the rise of the creative artist. Special 
attention, wherever possible, will be paid to newly-
discovered work.

141A. Archaic Greek Art and Architecture (750-480 
B.C.). (4) The early development of the major genres of 
Greek art in the era of the emerging city-states.

141B. Classical Greek Art and Architecture (500-320 
B.C.). (4) The maturity of the major genres of Greek art 
in Periclean Athens and the other leading centers.

141C. Hellenistic Art and Architecture (330-30 B.C.). (4) 
A survey of the major genres of Greek art in the 
Hellenistic world from Italy to India.

145. Roman Art. (4) Four hours of lecture per week. 
The art of Rome and the Roman Empire, from its 
sources in the Republican era to the Age of Con-
stantine the Great.

151. Art in Late Antiquity. (4) Four hours of lecture 
per week. Imperial art from Galenius through the 
collapse of the Western empire. Christian art from the 
begging around 200 through the age of Justinian. 
Revolutions in the seventh and eighth centuries. A look 
back from the height of Charlemagne and contemporary 
Constantinople.

160. Renaissance Art in Florence 1400-1600. (4) 
Four hours of lecture and one hour of discussion per 
week. A selective survey of major developments in 
Florentine Renaissance painting, sculpture, and archi-
tecture organized by genre. Particular emphasis on 
the relationship between art and religion and the ide-
ology of Florentine republicanism and ducal abso-
lutism. Issues of gender, the status of artists, and the 
function, audience, and patronage of art will also be 
considered.

161. Renaissance Art in Rome 1400-1600. (4) 
Four hours of lecture and one hour of discussion per 
week. A selective survey of major developments in 
Roman Renaissance painting, sculpture, and architecture 
organized by genre. Particular emphasis on the 
relationship between art and religion and the ideol-
ogy of the Venetian commune. Issues of gender, the 
status of artists, and the function, audience, and 
patronage of art will also be considered.

166. Van Eyck to Brueghel. (4) Three hours of lecture 
and one hour of discussion per week. The great age of 
Netherlandish art, from its roots in manuscript illumi-
nation through the masters of panel painting (Van 
Eyck, Van der Weyden, Bosch, Brueghel) up to the 
first bourgeois society. Particular emphasis on the 
relationship between art and religion and the ideol-
yogy of the Venetian commune. Issues of gender, the 
status of artists, and the function, audience, and 
patronage of art will also be considered.

170. Southern Baroque Art. (4) Three hours of 
lecture and one hour of discussion per week. The major 
artists (among them Caravaggio, Bernini, Velazquez, 
and Poussin) and the major concerns (including genres 
such as history painting, landscape, low-life, and 
notions of imitation and illusionism) of 17th-century 
Southern Europe will be explored.

172. The Dutch Golden Age. (4) Three hours of lec-
ture and one hour of discussion per week. The rise 
of a rich visual culture in 17th-century Holland that 
expressed the ideals, aspirations, and identity of the 
first bourgeois capitalist society. Rembrandt, Vermeer, 
and others in the context of contemporary aesthetic 
concerns (realism, optics) and social issues (domes-
tic values, poverty and wealth, colonialism, national identity).

173. The Age of Rubens. (4) Three hours of lecture and one hour of discussion per week. The culture of early 17th-century Europe as it was known (and created by Sir Peter Paul Rubens, painter, merchant, and diplomat. Begins in Flanders and travels (with Rubens) to Italy, Spain, France and England, examining politics, religion and visual culture in each place. Key issues include the development of a distinct artistic tradition; art and politics; crafting social status; workshop practice.

180A. Nineteenth-Century Europe: Age of Revo-

lution. (4) Three hours of lecture and one hour of dis-
cussion per week. Topics in late 18th- and early 19th-century Europe, either focusing on a particular theme and/or nation (e.g. Romanticism and reaction). May focus on Paris, or on Paris’s influence on other European centers.


182. Histories of Photography. (4) Three hours of lecture and one hour of discussion per week. Formerly 188. Topics in 19th- and 20th-century histories of photography; for example, photography in relation to modern art, 19th-century popular genres, or consumerism. Topics may include photography and art, photography and identity, photography and technology, and the education of the artist, as well as style and cultural expression. Field trips. (F,SP)

185A. American Art (1800-Present). (4) Three hours of lecture and one hour of discussion per week. Looking at major developments in architecture, decorative arts, photography, and painting from Romanticism to post-modernism, this course addresses art and its social context over the last two centuries in what is now the United States. Issues include patronage, audience, gender and women’s role in the art world, and as well as style and cultural expression. Field trips. (F,SP)

185B. American Architecture: Domestic Forms. (4) Three hours of lecture and one hour of discussion per week. Taking as a point of departure specific exemplary houses, both vernacular and high-style architectural forms are studied from the perspectives of the history of style, of technology, and of social use. Both the class as a whole and the student research projects take a case-study approach. Field trips.

186A. Art in the Early 20th Century. (4) Three hours of lecture and one hour of discussion per week. Primarily Europe. May focus on a particular place and period (e.g., Art in Paris, 1900-1914, or Art and the First World War) or on major artistic problem (e.g., Abstraction and Figuration). (F,SP)

186B. Art in the Mid-20th Century. (4) Three hours of lecture and one hour of discussion per week. Art between the world wars and in the later 1940s and 1950s. The focus may be on Europe or on Europe-U.S. interconnections, with an emphasis on the avant-garde, art and politics in the age of Lenin and Hitler, etc.

186C. Art in the Later 20th Century. (4) Three hours of lecture and one hour of discussion per week. A consideration of major issues in European and American post-war art to the present day. Emphasizes conceptualism, video and performance art, as well as traditional media.

187B. Problems in 20th-Century Sculpture. (4) Three hours of lecture and one hour of discussion per week. An examination of key issues, artists, and works, including sculpture and primitivism, sculpture in mass society, sculpture, the body, and the surreal. Previous coursework in history of art recommended. C189. The American Forest: Its Ecology, History, and Representation. (4) Three hours of lecture and one hour of discussion per week. The American forest as it was known (and created by) Thomas Jefferson and his contempo-
aries. May include major developments in architecture, decorative arts, photography, and painting from Romanticism to post-modernism, this course addresses art and its social context over the last two centuries in what is now the United States. Issues include patronage, audience, gender and women’s role in the art world, and as well as style and cultural expression. Field trips. (F,SP)

lar art form or art history. Assigned readings, discussions, and a substantial paper. This course satisfies the American Cultures requirement.

193. Directed Research. (4) Prerequisites: Consent of instructor and departmental adviser. Intended for advanced undergraduate wishing to continue re-
search beyond topics already begun in a lecture or seminar or to pursue at a high level specialized topics not ordi-

narily covered in the curriculum. Usually results in a substantial paper. For general independent study, see 199; for honors research, see H195.

194. Museum Internship. (4) Course may be repeated for credit. Ten hours of fieldwork per week plus conferences. Must be taken on a passed/not passed basis. Prerequisites: Approval of undergrad-
uate adviser. 195A. Directed Research. (4) Directed research for their faculty coordinator, princi-
apal professional experience, usually for no fewer than 10 hours per week, involving a substantial project of a curatorial nature. Jointly supervised by a member of the professional staff of the museum and a faculty member. Internships ordinarily must be arranged well in advance; for further information, inquire at 416 Doe Library. (F,SP)

H195. Special Study for Honors Candidates in the History of Art. (4) Individual conferences and thesis. Prerequisites: Senior standing and qualifying scholas-
tic record. (3.5 GPA overall and 3.5 GPA in upper divi-
sion courses completed in the major). Directed study leading to the completion of the honors thesis. Consult the description of the Honors Program in Art History. C196W. Special Field Research. (10.5) Course may be repeated for a maximum of 12 units. 240-300 hours of work per semester plus regular meetings with the faculty supervisor. Prerequisites: Consent of instructor. Formerly 196W. Students work in selected internship programs approved in advance by the faculty coordi-
nator and for which written contracts have been estab-
lished between the sponsoring organization and the student. Students will be expected to produce two major independent papers or to pursue at a high level specialized topics not ordi-

narily covered in the curriculum. Usually results in a substantial paper. For general independent study, see 199; for honors research, see H195.

198. Supervised Group Study. (1-4) Course may be repeated for credit. Tutorial. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Instruction for a small group of students on a topic initiated by those students. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor, major adviser, and department chair. For students wishing to pursue an interest not represented in the curriculum by devel-
oping an individual program of study supervised by a faculty member. Study may involve readings, proj-
ects, papers, fieldwork, etc. For continuing or ad-
vanced research projects, see 193.

Graduate Courses

General prerequisites: undergraduate and con-
sent of the instructor, and possibly courses in the description of the Honors Program in Art History. Special Topics in Fields of Art History. Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190AC course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library. (F,SP)


192. Undergraduate Seminar: Problems in Re-

search and Interpretation. Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Senior standing and consent of instructor. Concentration on specific problems or works in a particu-
lar area of art history. Assigned readings, discussion, and a substantial paper. For general independent study, see 199; for honors research, see H195.

192A. Undergraduate Seminar: Folk Art in Amer-

ica. (4) Three hours of seminar per week plus exten-
sive outside work. Prerequisites: Primarily for juniors and seniors in the major or consent of instructor. Concentration on specific problems or works in a particu-
lar area of art history. Assigned readings, discussion, and a substantial paper. For general independent study, see 199; for honors research, see H195.

lar art form or art history. Assigned readings, discussions, and a substantial paper. This course satisfies the American Cultures requirement. (F,SP) Lovell

*Recipient of Distinguished Teaching Award
203. Seminar in Material Culture: The Interpretation of Objects. (2,4) Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. This seminar looks at both material culture theory and the practice of interpreting objects in the West and in other cultures. The seminar introduces students to the practices and inquiries of multiple disciplines including archaeology, anthropology, cultural geography, and art history. We will consider the variety of ways and contexts in which objects have been labeled as ‘art’, ‘antiques’, or ‘decorative’ or ‘useful’ objects. The curriculum is designed to allow students to pursue their individual interests in material culture. 

Prerequisites: Graduate standing and consent of instructor.

257. Seminar in Romanesque and Gothic Art. (2,4) Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. May be taken for 2.0 units on a satisfactory/unsatisfactory basis with consent of instructor. Prerequisites: Graduate standing and consent of instructor.

262. Seminar in European Art. (2,4) Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. May be taken for 2.0 units on a satisfactory/unsatisfactory basis with consent of instructor. Prerequisites: Graduate standing and consent of instructor.

270. Seminar in Baroque Art. (2,4) Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. May be taken for 2.0 units on a satisfactory/unsatisfactory basis with consent of instructor. Prerequisites: Graduate standing and consent of instructor.

280. Seminar in Ancient Art. (2,4) Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. May be taken for 2.0 units on a satisfactory/unsatisfactory basis with consent of instructor. Prerequisites: Graduate standing and consent of instructor.

295. Seminar in Prehistoric Art. (2,4) Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. May be taken for 2.0 units on a satisfactory/unsatisfactory basis with consent of instructor. Prerequisites: Graduate standing and consent of instructor.

300. Teaching the History of Art. (1-5) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis.

Professional Courses

602. Individual Study for Doctoral Students in the History of Art. (1-12) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. For candidates for doctoral degree. Individual study, in consultation with the graduate adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree. (F,SP)

Undergraduate Program

The Asian American Studies Program offers a unique and comprehensive undergraduate curricu- luum which seeks to make at least three major contributions. First, it prepares students for posi- tions of service and leadership in Asian American communities. To do this, the program draws heav- ily on the curricula of such schools and depart- ments as Education, Public Health, Law, and Soci- ology. The program itself offers instruction in those areas relating to the special needs of Asian Amer- ican communities. Second, the program explores the hitherto neglected aspects of the cultural, polit- ical, and historical experience of Asians in America. In doing so, it provides the undergraduate with a thorough instruction on the experience of Asians in the United States, and prepares students for grad- uate work in their own and allied fields. Third, the program broadens the curriculum at Berkeley to include instruction which reflects the contributions of Asians and other Third World people living in America.
Major Requirements

Lower Division. Ethnic Studies 10AC and 11AC. Asian American Studies 20A and 20B.


Honors. The Asian American Studies Program provides an option leading to the A.B. degree with honors. To be recommended for honors, students must have: (1) completed at least 30 units and two semesters with GPAs of at least 3.3 for all work undertaken in the Asian American Studies Program, and (2) been approved specifically for honors by the Department of Ethnic Studies chair and the Asian American studies coordinator upon recommendation by the faculty adviser for the major. Honors students must complete H195, the senior honors seminar for Asian American studies majors. Students must have at least a 3.3 GPA for all coursework undertaken at the University.

The Minor

Requirements. Five elective courses from Asian American Studies 120, 121, 122, 123, 124, 125, 126, 127, 129, 130, 131, 141, 142, 145, 146, 150, 151, 165, 171, 172, 175, 176, 177, 178, 179, 180, 181, 183, 190, 190AC.

Lower Division Courses

R2A. Reading and Composition. (3) Three hours of lecture and one hour of tutorial per week. Prerequisites: 1, UC Entry Level Writing Requirement or equivalent. Formerly 2A. Through the study of the literary, political, social and psychological dimensions of representative works of Asian American literature, this course prepares students for college-level composition. It fosters critical judgment, and reinforces academic writing skills. Satisfies the first half of the Reading and Composition requirement. (F,SP)

R2B. Reading and Composition. (3) Three hours of lecture and one hour of tutorial per week. Prerequisites: 2A, English 1A or equivalent. Formerly 2B. This course examines literary works by Asian American, African American, Chicano, and Native American writers in their political and social contexts, focusing on similarities and differences between the experiences of ethnic minorities in the U.S. Emphasis is on literary interpretation and sustained analytical writing. Satisfies the second half of the Reading and Composition requirement. (F,SP)

R2A. Introduction to the History of Asians in the United States. (4) Three hours of lecture and one hour of discussion per week. Introductory comparative analysis of the Asian American experience from 1848 to present. Topics include an analysis of the Asian American perspective; cultural roots; immigration and settlement patterns; labor, legal, political, and social issues. (F)

R2B. Introduction to the Contemporary Issues in the Asian American Communities. (4) Three hours of lecture and one hour of discussion per week. An introduction to Asian American communities and the social, economic, and political issues they confront. The diverse range of communities, both suburban and urban, will be surveyed and situated within a domestic and global context. (F)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Sections 1-2 to be graded on a letter-grade basis. Sections 3-12 to be graded on a pass/no pass basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for 10 weeks. One and one-half hours of seminar per week for unit to 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a pass/no pass basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses limited by enrollment to all across campus. The purpose of the course is to foster the intellectual curiosity and development of students. These courses are designed to provide a platform to engage in academic research and analysis. For those students who are interested in pursuing an academic career, this course will provide an opportunity to develop a research paper. (F,SP)

97. Field Studies in Asian Communities. (1-3) Course may be repeated for credit. Three hours of fieldwork per week per unit. Must be taken on a pass/no pass basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor. University organized and supervised field program involving experiences in schools, school-related activities, community organization; and community-related activities. Enroll in course in fall or spring semester. (F,SP)

98. Supervised Group Study. (1-3) Course may be repeated for credit. Enrollment is restricted to upper division students. Must be taken on a pass/no pass basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor. Group study of selected topics which will vary from semester to semester. (F,SP)

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted to upper division students. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Individual research on a topic which leads to the writing of a major paper. Regular meetings with faculty sponsor. (F,SP) Staff

Upper Division Courses

120. Comparative History of Asian American Experiences. (4) Three hours of seminar per week. Prerequisites: 20A or equivalent. Analysis of the similar themes of Asian American experiences in America; methods of comparative approach to Asian American history; common Asian experiences in areas such as immigration, labor, economic development, race relations, community institutions and development. Occupational patterns will be analyzed and compared. (SP)

121. Chinese American History. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. Chinese American history, 1848 to present. Topics include influence of traditional values, Eastern and Western; patterns of immigration and settlement; labor history; the influence of public policy, foreign and domestic, on the Chinese individual and community. (SP)

122. Japanese American History. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. This course will be presented as a proseminar with selected topics in order to give students an opportunity to participate in the interpretation of the Japanese American historical experience. Topics include immigration, anti-Japanese racism, labor, concentration camps, agriculture, art and literature, and personality and culture. (F,SP) Staff

123. Korean American History. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. Koreans in America from 1876 to the present. Topics include comparative immigration and settlement patterns; labor and socio-economic life; political activities; community organization; and contributions to the contemporary population influx. (SP)

124. Filipino American History. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 20A or equivalent. Topics include contributions of the Spanish and Philippine, and contributions of Filipino immigration and life; conditions in Hawaii and California and the need for Filipino labor; community development; changing relations between the U.S. and the Philippines, the cold war in the region and the World War II on Filipino Americans; and contemporary issues. (F,SP)

125. Contemporary Issues of Southeast Asian Refugees in the U.S. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. Topics include new issues facing Southeast Asian refugees in the U.S. While the course focus is on the Asian American experience, this course addresses the social, economic, educational, and political issues facing Southeast Asian refugee groups. The processes and problems in the formulation of refugee programs and services in the U.S. will also be addressed in their implications for refugee resettlement and adaptation experience. Emphasis will be placed on comparative analyses of the Southeast Asian refugee communities. (F,SP)

126. Southeast Asian Migration and Community Formation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. This course will examine Southeast Asian migration to the U.S. in the context of the United States involvement in Vietnam, Laos, and Cambodia. These events address the post-war “legacies” and their impact on the societies and politics of these countries as well as neighboring states in the region. Asylum politics and refugee camp experiences will be addressed in the discussion of the formation of U.S. resettlement policies and of the adaptation of Southeast Asian refugees. (F,SP)

127. South Asian American Historical and Contemporary Issues. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 20A or equivalent. Examination of the social and economic history of South Asian Americans from the early 20th century to present. Development of South Asian American communities within the social, political and economic contexts of South Asia and the United States. (F,SP)

128AC. Muslims in America. (4) Three hours of lecture and zero to one hour of discussion per week. The course traces Islam’s journey in America. It will deal with the emergence of identifiable Muslim communities throughout the U.S. and focus on patterns of migration, the ethnic makeup of such communities, gender dynamics, political identity, and cases of conversion to Islam. The course will spend considerable time on African American and Arab American Muslim communities since they constitute the largest groupings. It also examines in depth the emergence of national, regional, and local Muslim institutions, patterns of development pursued by a number of them, and levels of cooperation or antagonism. The course seeks an examination of gender relations and dynamics across the various Muslim groupings, and the internal and external factors that contribute to real and imagined crisis. The course seeks to conduct and document the growth and expansion of mosques, schools, and community centers in the greater Bay Area. Finally, no class on Islam in America would be complete without a critical examination of the impacts of 9/11 on Muslim communities, the erosion of civil rights, and the ongoing war on terrorism. This course satisfies the American Cultures requirement. (F,SP)

130. Asian Americans and Foreign Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or consent of instructor. This course is an introduction to the political, economic, and cultural relations between the United States and Asia and the implications for Asian communities. In analyzing interstate relations, students will gain insight into U.S. policies and interests in Asia-Pacific and the interplay of internal and external forces that shaped the Asian American experience and influenced the
emergence and development of Asian American communities. (F,SP)

141. Law in the Asian American Community. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. Course will examine the nature, structure, and operation of selected legal institutions as they affect Asian American communities and will attempt to analyze the roles and effects of law, class, and race in American society. May be taken with 197.

145. Politics, Public Policy, and Asian American Communities. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. An examination of the purpose, power, and function of the executive, legislative, and judicial branches of the federal government and their relationship to the Asian American community. The course presents a range of contemporary issues to illustrate how government institutions and the Asian community define issues and respond to political challenges.

146. Asian Americans and Education. (4) Three hours of lecture and zero to one hour of discussion per week. This course examines the historical and contemporary issues which shape the educational experiences of Asian Americans. Critical issues such as bilingual education, university admissions, and the education of Asian immigrants as well as theoretical models of Asian American academic success will be explored and critically analyzed. (SP) Staff

150. Gender and Generation in Asian American Communities. (3) Three hours of lecture per week. This course will examine gender issues and the experiences of Asian women in relation to work, sexuality, intellectual and artistic activity, and family and community life, as well as the development of Asian American feminist thought and its relation to cultural nationalism. (SP)

156. Research Methodologies in Asian American Communities. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. Approaches to research in the Asian American community, focusing on the San Francisco Bay Area. Problems of research design, measurement, and data collection, processing, and analysis will be considered. (SP)

171. Asian Americans in Film and Video. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. Approaches to research in the Asian American community. The course presents a range of contemporary issues to illustrate how government institutions and the Asian community define issues and respond to political challenges.

177. Asian American Art: Remapping Modernity: Art and Artists in the 20th Century. (3) Three hours of seminar per week. Seminar in contemporary Asian American visual art, with a focus on the politics of production and reception. Works by such artists as Y.-David Chung, Hung Liu, Yong Soon Min, Long Nguyen, and Manuel Ocampo will be studied. (F,SP)

180. Chinese-Language Literature and Film on the Immigrant Experience. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 170 and consent of instructor. Analyzes prose narratives by Asian American writers which prominently feature the crossing of national borders; explores sociohistorical factors in displacement; gender, nation-state and subjecthood; multiple migrations; constructions of home; postcolonial, postmodernist, diasporic, and globalized views of transnational movement. (F,SP)

181. Chinese American Literature. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 170 and consent of instructor. Analyzes literary representations of contemporary and/or historical experiences of Chinese American women in relation to work, sexuality, intellectual and artistic activity, and family and community life. (F,SP)

183. Korean American Literature. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 170 and consent of instructor. Analyzes literary representations of contemporary and/or historical experiences of Korean American writers by focusing on works from the 1960s and beyond. All readings in Chinese; lectures primarily in English; in-class discussion and written assignments in either Chinese or English. (F,SP)

190AC. Seminar on Advanced Topics in Asian American Studies. (4) Three hours of seminar per week. Prerequisites: Consent of instructor. Advanced seminar in Asian American Studies with topics to be announced at the beginning of each semester. (F,SP)

This course satisfies the American Cultures requirement. (F,SP)

195. Senior Thesis. (4) Independent study. Prerequisites: Consent of instructor. Writing of a thesis under the direction of member(s) of the faculty. (F,SP) Staff

199A-H199B. Senior Honors Seminar for Asian American Studies Majors. (3) Credit and grade to be awarded on completion of sequence. Prerequisites: Approval of faculty committee; 3.3 GPA on all University work and a 3.3 GPA in courses in the major. Formerly H195. Research seminar for senior Asian American studies majors designed to support and guide the writing of a senior thesis. (F,SP) Staff

199D. Senior Honors Thesis. (1-3) Course may be repeated for credit. Enroll only with permission of instructor. Prerequisites: Approval of faculty committee; 3.3 GPA on all University work and a 3.3 GPA in courses in the major. Formerly H195. Research seminar for senior Asian American studies majors designed to support and guide the writing of a senior thesis. (F,SP)

199E. Senior Honors Seminar. (1-3) Course may be repeated for credit. Enroll only with permission of instructor. Prerequisites: Approval of faculty committee; 3.3 GPA on all University work and a 3.3 GPA in courses in the major. Formerly H195. Research seminar for senior Asian American studies majors designed to support and guide the writing of a senior thesis. (F,SP) Staff

199F. Senior Honors Thesis. (1-3) Course may be repeated for credit. Enroll only with permission of instructor. Prerequisites: Approval of faculty committee; 3.3 GPA on all University work and a 3.3 GPA in courses in the major. Formerly H195. Research seminar for senior Asian American studies majors designed to support and guide the writing of a senior thesis. (F,SP)

199G. Senior Honors Seminar. (1-3) Course may be repeated for credit. Enroll only with permission of instructor. Prerequisites: Approval of faculty committee; 3.3 GPA on all University work and a 3.3 GPA in courses in the major. Formerly H195. Research seminar for senior Asian American studies majors designed to support and guide the writing of a senior thesis. (F,SP)

Asian Studies

(University of California, Berkeley)

Undergraduate Office: 101 Stephens Hall, (510) 643-5814
Graduate Office: 2253 Fulton Street, Room 524, (510) 642-0333
Chair and Head Adviser: Bonnie C. Wade, Ph.D.
Advisers

Martin Backstrom (Institute of East Asian Studies)
Jeffrey Hadley (South and Southeast Asia)
Michael Nylan (History)
Sophie Volpp (East Asian Languages and Cultures)
Bonnie Wade, Chair, Group in Asian Studies (Music)
Duncan Williams (East Asian Languages and Cultures)
Xiang Xiao (School of Journalism)

Group Major in Asian Studies

The undergraduate group major in Asian studies is a rigorous but flexible interdisciplinary program designed to assist students to take advantage of the rich course offerings in the Asian field campuswide in a way that is not available through departments. Each student’s program is coordinated to assure deeper knowledge of Chinese or Japanese culture and language and also a broad range of inter-area and interdisciplinary perspectives.

Prerequisite Courses in the Major

Students petitioning to enter the group major must have completed (grade C or better) the following:

2. One lower-division history course (choose one):
   - History 6A (China, Early empires)
   - History 6B (Modern China)
   - History 11 (India)
   - History 14 (Japan)
   - SEASian 10A (Southeast Asia mainland)
   - SEASian 10B Southeast Asia (insular)
Additional Major Requirements

Once accepted in the major, the student is expected to select an area focus (Area I—China; Area II—Japan) and a disciplinary cluster within that area. The following coursework is required:

1. Two years of language appropriate to the area focus. After the second year, further study of the language at the upper division level is encouraged and will count toward the major unit requirement.

2. Completion of a minimum of 30 units of upper division coursework.

3. Two courses must be in the same discipline. One of the two must be a course whose primary purpose is to introduce the theories and methods of the discipline.

4. One upper division course must be a course in Asian history appropriate to the student’s area focus.

5. The remaining five courses needed to fulfill the 30 unit requirement may be selected from the categories of "other courses" and "inter-area courses" listed below. At least one course must focus on a geographical area outside the student’s area focus.

Area Focus

China

1. Students must complete two years of Chinese (Mandarin). Further study of the language is encouraged and will count toward the major unit requirement.

2. Disciplinary theory and methods course (choose one): Anthropology 114, 141, 144, 169B, 170; Chinese 142; EALC 103; Economics 100A, 100B, 101A, 101B; Film 100; History 103F; History of Art 100, 102; IAS 102, 106, 107, 118; Linguistics 111A, 111B, 111C; PACS 100; Political Economy 101; Political Science 126; Political Science 129; Sociology 172; South Asian Studies 124, 127, 128, 130, 140, 141, 142, 143, 145; Southeast Asian Studies 122, 124, 125, 127, 129, 130; South and Southeast Asian Studies C112, 141; Women's Studies 141, 142.

*These courses are appropriate when they include Asian in their curriculum.

In exceptional cases, individual waivers of specific course requirements for valid academic reasons will be considered with approval of the major adviser.

Double Majors

Approximately fifty percent of our majors choose to double major. The major lends itself well to pairings with disciplinary majors, such as economics, anthropology, history of art, political science, and history, among others.

Optional Senior Thesis

Qualified students may complete a senior thesis approximately 50 pages in length under the supervision of the major adviser or another appropriate faculty member. Three units of upper division credit in Asian Studies 196 will be given for completion of the thesis.

Honors Program

Open to seniors in the group major in Asian studies whose GPA is 3.5 or higher in all university work and 3.6 or higher in the major. The program consists of completion of Asian Studies H195A, H195B, and the writing of an honors thesis. The honors thesis is expected to be a substantial research paper, both in its length and originality; it is read by two faculty members.

Minor Program in Asian Studies

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

There are three minor program options in Asian Studies: Chinese studies, Japanese studies, and Korean studies. These programs give students an introduction to the study of one region of Asia through social science and humanities courses.

Graduate Program

The Group in Asian Studies offers an M.A. degree program in Asian Studies. Students in the program engage in the study of East Asia (China), Northeast Asia (Japan/Korea), Southeast Asia, or South Asia. The group, in cooperation with the Graduate School of Journalism and the School of Law, also offers a concurrent M.J.M.A. in journalism and Asian studies, and a concurrent J.D./M.A. in law and Asian studies. The group is authorized to award the degree of Doctor of Philosophy in Asian Studies, but for practical and academic reasons this degree is very restricted. Applicants with specific disciplinary interests should apply to a particular department rather than to the interdisciplinary group. Only those who have first completed a Group in Asian Studies may apply to the Ph.D. program.

Lower Division Courses

10. Introduction to Asia. (4) Three hours of lecture and one hour of discussion per week. Formerly 10A-10B. This course is designed to interest students in Asian cultures early in their undergraduate studies. Topics include: the role of trade, science and political formations, religions, food, and expressive culture that have been important in history as well as in contemporary times in East, South, and Southeast Asia will serve as unifying themes. Comparative thinking across regions of Asia and the perspectives of multiple disciplines will be brought to bear on the themes. (F) Staff

98. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Group meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of Instructor required. Group discussion, research and reporting on selected topics. (F,SP)

Upper Division Courses

150. Special Topics. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Group research in current issues or regions of Asian studies. The course will focus on specific areas or topics with appropriate comparative material included. Topics change each semester. (F,SP)

H195A-H195B, Senior Honors. (3) Individual study supervised by two faculty members. Credit and grade to be awarded on completion of sequence. Prerequisites: Open to seniors in the group major in Asian Studies whose GPA is 3.5 or higher in all university work and 3.6 or higher in the major. Supervised readings or field research on a significant problem in Asian Studies, collection and analysis of research materials, and the preparation of an honors dissertation in close consultation with two members of the faculty. (F,SP)

196. Senior Thesis. (3) A maximum of 3 units of credit to be applied toward the major. May be repeated without credit toward the 36 unit major requirement. Individual study supervised by appropriate faculty adviser. Prerequisites: Consent of adviser. Open to seniors in the Group in Asian Studies. Individual conferences to be arranged with the major adviser or other appropriate faculty member for collection and analysis of research materials and preparation of the undergraduate thesis. (F,SP)
Astronomy
(Locegi of Letters and Science)
Department Office: 601 Campbell Hall, (510) 642-5275 astro.berkeley.edu
Chair: Donald Backer, Ph.D.
University Professor
Frank H. Shu (Emeritus), Ph.D.
Professors
Jonathan Arons, Ph.D. Harvard University. High-energy astrophysics, pulsars, binary stars, dark matter (Physics)
Donald C. Backer, Ph.D. Cornell University. Neutron stars, black holes, epoch of reionization, instrumentation
Gabor Basri, Ph.D. University of Colorado. Boulder. Star formation, magnetic activity, brown dwarfs, high resolution spectroscopy
Leo Blitz, Ph.D. Columbia University. Star formation, galaxy structure, formation and evolution, radio astronomy
Josh Bloom, Ph.D. California Institute of Technology. Gamma-ray bursts, transients, instrumentation
Geoffrey Bower, Ph.D. Brandeis University. Star formation, detecting and studying the interstellar medium
Eugene Chiang, Ph.D. California Institute of Technology. Circumstellar and circumplanetary disks (Earth and Planetary Science)
Marc Davis, Ph.D. Princeton University. Physical cosmology, large-scale structure, dark energy (Physics)
Imke de Pater, Ph.D. University of Hawaii. Planetary interiors and origins (Earth and Planetary Science)
†Alexei Filippenko, Ph.D. California Institute of Technology. Supernovae, cosmology, black holes, active galaxies, gamma-ray bursts
James Graham, Ph.D. Imperial College, London. Interstellar medium, atomic and molecular astrophysics
Carl E. Heiles, Ph.D. Princeton University. Interstellar medium, atomic and molecular astrophysics
Raymond Jearnoloz, Ph.D. California Institute of Technology. Planetary interiors and origins (Earth and Planetary Science)
Chung-Pei Ma, Ph.D. Massachusetts Institute of Technology. Cosmology, large-scale structure, dark matter
Geoff Marcy, Ph.D. University of California, Santa Cruz. Detection and study of extrasolar planets, planetary science, stellar activity
Christopher McKee, Ph.D. University of California, Berkeley. Galactic structure, formation and evolution, radio astronomy, infrared, ultraviolet, X-ray astronomy
Eliz Quataert, Ph.D. Harvard University. Compact objects, accretion, galaxy formation
Martin White, Ph.D. Yale University. Physical cosmology, large-scale structure (Physics)
C. Stuart Bowyer, Ph.D. California Institute of Technology. Variability and radio astronomy
Leonard V. Kuli (Emeritus), Ph.D. Hyron Spinrad (Emeritus), Ph.D. Harold F. Weaver (Emeritus), Ph.D. William J. Herbst, Ph.D. The Watson and Marilyn Alberts Chair Emeritus, Ph.D.

Adjunct Professors
Albert Glassgold, Ph.D. Massachusetts Institute of Technology. Interstellar medium, star formation, astrochemistry
Paul Kalas, Ph.D. University of Hawaii. Mamoa. Circumstellar disks, exsolar planets, instrumentation
Richard I. Klein, Ph.D. Brandeis University. Star formation, accreting X-ray sources, radiation-hydrodynamics, interstellar medium

Department Overview
The Department of Astronomy offers undergraduate and graduate instruction in a wide variety of fields, including theoretical and observational astrophysics. A student majoring in astronomy is allowed to develop their own research in any area. The department is divided into six groups:

- Planetary Science
- Interstellar Medium and Star Formation
- High-energy Astrophysics and Cosmology
- Star and Galactic Structure
- Planetary Interiors and Origins
- Cosmology, Large-scale Structure, and Dark Matter

Individual meetings to be arranged. Must be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Individual meetings to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Upper division standing and consent of instructor. Directed group study of special topics approved by the chair of the Group in Astronomy. (F,SP) Staff

Graduate Courses
201. Asian Studies Proseminar. (1) Course may be repeated for credit. Fifteen hours of seminar per semester. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. This course is required of all first-year graduate students and supervised by a regular faculty member. The seminar will familiarize students with faculty, their Asian interests, research methods, and the courses they teach. It consists of presentations by faculty on their past, present, and future research. (F,SP) Staff

202. Directed Research. (1) Course may be repeated for credit. Two hours of consultation per meeting for eight weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Two hours of consultation per meeting to provide supervision in the preparation of an M.A. thesis. (SP) Staff

203. Directed Group Research. (2-6) Group meetings to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Directed reading in subject matter not covered in scheduled seminar offerings. (F,SP) Staff

Astronomy
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Eugene Chiang, Ph.D. California Institute of Technology. Circumstellar and circumplanetary disks (Earth and Planetary Science)
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Chung-Pei Ma, Ph.D. Massachusetts Institute of Technology. Cosmology, large-scale structure, dark matter
Geoff Marcy, Ph.D. University of California, Santa Cruz. Detection and study of extrasolar planets, planetary Science, stellar activity
Christopher McKee, Ph.D. University of California, Berkeley. Galactic structure, formation and evolution, radio astronomy, infrared, ultraviolet, X-ray astronomy
Eliz Quataert, Ph.D. Harvard University. Compact objects, accretion, galaxy formation
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Richard I. Klein, Ph.D. Brandeis University. Star formation, accreting X-ray sources, radiation-hydrodynamics, interstellar medium

Department Overview
The Department of Astronomy offers undergraduate and graduate instruction in a wide variety of fields, including theoretical and observational astrophysics. Two senior-level courses (Astronomy 160, 161) are designed for graduate students and majors in astrophysics and another science, the upper division requirement is reduced to 24 units.

All students are required to take at least one semester of undergraduate laboratory (Astronomy 120, 121, 122) and two of the senior-level courses (Astronomy 160, 161, 162). Many students pursuing a dual-major of astrophysics and physics will be most interested in 160 and 161. Double-majors in astronomy and earth and planetary science will be most interested in 160 and 162. With the approval of a graduate advisor, outstanding students may take a graduate course in astronomy.

Honors Program. For honors in astrophysics a student must fulfill the following additional requirements: (1) maintain a GPA of at least 3.5 in all courses in astronomy and related fields, and an overall GPA of at least 3.3 in the University; (2) carry out an individual research or study project, involving at least three units of H195. The student’s project is chosen in consultation with a departmental advisor, and the written report is judged by the student’s research supervisor and by a departmental advisor.

For more detailed or complete information about the astrophysics major, please contact the undergraduate student affairs officer in 611 Campbell Hall.

The Minor in Astrophysics
The minor program consists of two courses, either 120, 121, or 122; or 160, C161, or C162; plus three upper division electives. All courses must be taken for a letter grade.

Prerequisites. Physics 7A, 7B, 7C (or equivalent); Math 1A, 1B, 53, 54 (or equivalent). These courses must be taken for a letter grade. Physics 7A-7B-7C must each be passed with a letter grade of C or better. Students must achieve a minimum GPA of 2.0 in the seven courses. Astrophysics 7A and 7B are recommended for the minor but not required.

For more information regarding this program, please contact the undergraduate student affairs officer in 611 Campbell Hall.

Graduate Programs
The graduate program is aimed at the Ph.D. degree in astrophysics. Entering students need not have majored in astronomy, although some background in astronomy is desirable. A strong background in physics, however, is essential.

In addition to the qualifying examination required by the University, the department requires students to pass a preliminary examination which tests breadth and depth of knowledge of three specialized research areas. Berkeley offers a list of about 10. Students choose, with the aid of their adviser, courses in the department which are useful in preparing for the preliminary and qualifying examinations. In addition, students may pass two graduate courses taken outside the department and must acquire one year’s teaching experience. The program normally takes five to six years. Additional information on the program is available upon request from the department.

The requirements for the M.A. degree are 24 units in graduate or upper division undergraduate courses (12 of them in graduate courses) and the preliminary examination.

134 / Asian Studies
3. Descriptive Cosmology. (2) Two hours of lecture per week. No mathematical description of research and results in modern extragalactic astronomy and cosmology. We read the story of the development of the Big Bang theory. (F) Bloom, Davis, Ma

7A. Introduction to Astrophysics. (4) Students will receive 2 units of credit for 7A after taking 10; 6 units of credit for both 7A-7B after taking 10. Three hours of lecture and one hour of laboratory per week. Prerequisites: Physics 7A-7B (7B can be concurrent), or consent of the instructor. This is the first part of an overview of astrophysics, with an emphasis on the way in which physics is applied to astronomy. This course deals with the solar system and stars, while 7B covers galaxies and cosmology. Solar system topics include orbital mechanics, geology of terrestrial planets, planetary atmospheres, and the formation of the solar system. The study of stars will treat determination of observations, properties and stellar structure, and evolution. The physics in this course includes mechanics and gravitation; kinetic theory of gases; properties of radiation and radiative energy transport; quantum mechanics of photons, atoms, and electrons; and magnetic fields. (F) Marcy, Quataert

7B. Introduction to Astrophysics. (4) Students will receive 2 units of credit for 7B after taking 10; 6 units of credit for both 7A-7B after taking 10. Three hours of lecture and laboratory per week. Prerequisites: Physics 7A-7B (7B can be concurrent) or consent of the instructor. This is the second part of an overview of astrophysics, which begins with 7A. This course covers the Milky Way galaxy, star formation and the interstellar medium, galaxies, black holes, quasars, dark matter, the expansion of the universe and its large-scale structure, and cosmology and the Big Bang. The physics in this course includes topics such as mechanics and gravitation; kinetic theory of gases; properties of radiation and radiative energy transport; quantum mechanics of photons, atoms, and electrons; and magnetic fields and adds the special and general theories of relativity. (F) Bloom, Marcy, Quataert

10. Introduction to General Astronomy. (4) Students will receive no credit for 10 after taking 7A or 7B. Students can receive a deficient grade in 10 by taking both 7A and 7B. Three hours of lecture and one hour of discussion per week. A description of modern astronomy with emphasis on the structure and evolution of stars, galaxies, and the universe. Additional topics include pulsars, black holes, and extragalactic cosmology. Individual instructor's synopses available from the department. (F,SP) Staff

10.1. Directed Group Study. (1-4) Course may be repeated for credit as topic varies. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. May be taken as pass/no pass basis. Three hours of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for eight weeks. Sections 1-2 to be graded on a pass/no pass basis. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Topics will vary with instructor. (F,SP) Staff

10.2. Directed Study in Astronomy. (1-3) Individual project of research or study. (F,SP) Faculty

10.3. Special Study for Honors Candidates. (2-4) Course consists of one basic laboratory requirement and one astronomical topic in depth. Students are responsible for much of the presentation. (SP) Basri, Filippenko, Davis

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. Four hours of lecture per week. A description of modern astronomy with emphasis on the structure and evolution of stars, galaxies, and the universe. Additional topics include pulsed neutron stars, origins of pulsars, black holes, and EXOSAT. Individual instructor's synopses available from the department. (F,SP) Staff

110. Opening Astronomy Laboratory. (2) Course may be repeated for credit. Two hours of laboratory per week plus time spent at K-12 schools. This course is for undergraduate or graduate students interested in improving their ability to communicate their scientific knowledge to K-12 students. Must be taken once. Course combines lectures in science education and teaching methodology and pedagogy with six weeks of supervised teaching in local K-12 schools. The students will use materials developed from the Lawrence Hall of Science and other sources and will develop a demonstration of their own. They will receive feedback on their presentations. There will be some general discussion of the state and methods of science education, including the role of technology in the classroom and how to utilize information about student performance. (F) Bloom, Davis, Ma

112. Directed Group Study. (1-4) Course may be repeated for credit as topic varies. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. May be taken as pass/no pass basis. Three hours of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for eight weeks. Sections 1-2 to be graded on a pass/no pass basis. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Topics will vary with instructor. (F,SP) Staff

99. Directed Study in Astronomy. (1-3) Course may be repeated for credit as topic varies. Individual project of research or study. (F,SP) Faculty

200. Communicating Astronomy. (2) Course may be repeated for credit. Two hours of lecture each quarter, plus time spent at K-12 schools. This course is for undergraduate or graduate students interested in improving their ability to communicate their scientific knowledge to K-12 students. Must be taken once. Course combines lectures in science education and teaching methodology and pedagogy with six weeks of supervised teaching in local K-12 schools. The students will use materials developed from the Lawrence Hall of Science and other sources and will develop a demonstration of their own. They will receive feedback on their presentations. There will be some general discussion of the state and methods of science education, including the role of technology in the classroom and how to utilize information about student performance. (F) Bloom, Davis, Ma

210. Optical Astronomy Laboratory. (4) Four hours of discussion and one hour of lecture per week. Prerequisites: 7A-7B, Mathematics 53, 54, Physics 7A-7B-7C (7C may be taken concurrently). Formerly 120A. This course is an introduction to the following: accurate position measurements of stars and quasars; the mass density and the refraction of the atmosphere; laboratory exploration of the fundamental properties and evolution of stars. Theory of stellar structure. Stellar atmospheres and stellar spectroscopy. Evolution of high and low mass stars; supernovae. Degeneracy of matter and structure of collapse stars. Elements forming stars. Nuclear processes and nuclear reactions. Formation of planets. The physics of the Earth and Venus. (F,SP) Staff

121. Radio Astronomy Laboratory. (4) Four hours of discussion and one hour of lecture per week. Prerequisites: 7A-7B, Mathematics 53, 54, Physics 7A-7B-7C; Physics 110B recommended. Formerly 120B. Several basic laboratory experiments that concentrate on the behavior of radio waves and antennas in the construction of receiving, observing, and data analysis systems for two radioastronomical telescopes, a single-dish 21-cm line system and a 12-GHz interferometer; use of these telescopes for determining astrophysical projects including structure of the Milky Way galaxy, precise position measurement of several radio sources, and measurement of the radio brightness distributions on the surface of the Moon and the planets. (F,SP) Backer, Blitz, Heiles, Quataert


126. Planetary Astrophysics. (4) Three hours of lecture per week. Prerequisites: Mathematics 53, 54; Physics 7A-7B-7C. Formerly C149. Physics of planetary systems, both solar and extra-solar. Star and planet formation, radioactive dating, small-body dynamics and interaction of radiation with matter, tide, planetary interiors, atmospheres, and magnetosphere. High-quality oral presentations will be required in addition to problem sets. Also listed as Earth and Planetary Science C162. (F) Chang, de Pater, Marcy

H195. Special Study for Honors Candidates. (2-4) Individual project of research or study. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. May be taken as pass/no pass basis. Topics will vary with instructor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Independent study. Must be taken on a pass/no pass basis. (F,SP) Staff
201. Radiation Processes in Astronomy. (4) Three hours of lecture per week. Prerequisites: Physics 105, 110A; 110B concurrently; open to advanced undergraduates with GPA of 3.70. Formerly 201A. An introduction to the physics of astronomy and astrophysics at the graduate level. Principles of energy transfer by radiation. Elements of classical and quantum theory of photon emission; bremmstrahlung, cyclotron and Compton scattering, thermal and non-thermal radiation from atomic, molecular and nuclear electromagnetic transitions. Collisional excitation of atoms, molecules and nuclei. (F) Arons, Backer, Chiang, Quataert


204. Numerical Techniques in Astronomy. (3) Three hours of lecture per week. Prerequisites: Basic, Discrete, Quaternary 54. Methods of data analysis, model fitting, and data display, all oriented towards the detailed analysis of astronomical observation data and/or numerical simulations. Specific topics include probability density functions, error propagation, maximum likelihood, least squares, data and function fitting. Fourier transforms, wavelets, principal components analysis, color images. The software language used is the Interactive Data Language (IDL). (SP) Heiles

216. Interstellar Matter. (3) Three hours of lecture per week. Prerequisites: 201. A survey of the observational and theoretical ideas on the interstellar medium, with emphasis on the interstellar clouds and their components. (F) Blitz, Heiles, Glassgold, Graham, Shu, Welch

217. Radiative Astrophysics. (3) Three hours of lecture per week. Prerequisites: 201. The use of spectroscopy to diagnose physical conditions in optically thick objects is covered. Both continuum and spectral line formation including NLTE are treated. Modern research topics in this core area of astrophysics, like stellar atmospheres, star formation, and accretion disks, are also presented. (SP) Basri, Chang, Quataert

218. Stellar Dynamics and Galactic Structure. (3) Three hours of lecture per week. A basic course. Structure and kinematics of the galaxy; stellar population concepts; dynamics of stellar systems with and without encounters. (F) Blitz, Davis, Graham

228. Extragalactic Astronomy and Cosmology. (3) Three hours of lecture per week. A survey of extragalactic astronomy and cosmology—the study of the origin, evolution, and fate of the Universe. Topics include the Friedmann-Robertson-Walker model, thermal history and big-bang nucleosynthesis, evidence and nature of dark matter and dark energy, the formation and growth of galaxies and large scale structure, the anisotropy of the cosmic microwave radiation, inflation in the early universe, tests of cosmological models, and current research areas. The course complements the material of Astronomy 218. Also listed as Physics 228. (F) Davis, Holzapfel, Lee, Ma, White

249. Solar System Astrophysics. (3) Three hours of lecture per week. The physical foundations of planetary sciences. Topics include planetary interiors and surfaces, planetary atmospheres and magnetospheres, and smaller bodies in our solar system. The physical processes at work are developed in some detail, and an evolutionary treatment of the solar system, and each class of objects, is developed. Some discussion of other (potential) planetary systems is also included. Also listed as Earth and Planetary Science 249. (F) Chiang, de Pater, Jeanloz

250. Special Topics in Astrophysics. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Topics will vary from semester to semester. See department for announcements. (SP) Staff

252. Stellar Structure and Evolution. (3) Three hours of lecture per week. Prerequisites: Physics 110A-110B, 112, 137A-137B. Formerly C252 and Physics C252. Equations of stellar structure, radiation transfer and convection, thermonuclear reactions and stellar energy generations; stellar models, degenerate configurations, evolutionary sequences, supernovae, neutron stars, black holes, nucleosynthesis. (F.SP) Arons, Filippenko, Marcy

254. High Energy Astrophysics. (3) Three hours of lecture per week. Prerequisites: 201 or consent of instructor; 202 recommended. Basic physics of high energy radiation processes in an astrophysical environment. Cosmic ray production and propagation. Applications selected from pulsars, x-ray sources, supernovae, interstellar medium, extragalactic radio sources, quasars, and big-bang cosmologies. Also listed as Physics C254. (F) Arons, Beggs, Lin, Quataert

255. Computational Methods in Theoretical Astrophysics. (3) Three hours of lecture per week. Prerequisites: 201, 202. or consent of instructor. A broad survey of state-of-the-art approaches to astrophysical self-gravitational gas dynamics with application to large scale simulation of coupled non-linear astrophysical flows. Finite-difference approaches for La- grangian, Eulerian, explicit, and implicit methods. Specific topics include probability density functions, error propagation, maximum likelihood, least squares, data and function fitting. Fourier transforms, wavelets, principal components analysis, color images. The software language used is the Interactive Data Language (IDL). (SP) Heiles

267. Plasma Astrophysics. (3) Three hours of lecture per week. Prerequisites: 201. An introduction to plasma physics and astrophysical plasmas. Also listed as Physics C267. (SP) Klein

276. Plasma Astrophysics. (3) Three hours of lecture per week. Prerequisites: 201 and 202 recommended. Equations of magnetohydrodynamics and plasma physics to astrophysical problems. Topics emphasized will be the physics of collisionless shock waves, both non-relativistic and relativistic, with application to supernova remnants, nebulae, and jets driven by outflows from compact objects, galaxy clusters, and cosmic rays. Reconnection, including structure and instability of current sheets, with application to flaring behavior of the Earth’s magnetosphere, the Sun, and compact objects. Turbulence in magnetized plasmas, including intermittency and current sheet formation, with application to the solar wind, accretion disks, and molecular clouds. Arons

C285. Theoretical Astrophysics Seminar. (2) Two hours of seminar per week. Prerequisites: Consent of instructor. Survey of research currently being performed in the department or the university. (F) Staff

300. Instruction Techniques in General Astronomy. (2-6) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Discussion and practice of teaching techniques as applied to astronomy. Open to graduate students who are presently teaching assistants or associates. Two units for course plus one section; three units for two discussion sections. (F.SP) Staff

301. Undergraduate Astronomy Instruction. (1-2) Course may be repeated for credit. May be taken for a maximum of 4 units. One hour of lecture and three to six hours of laboratory per week. Must be taken on a passed/not passed basis. Prerequisites: An elementary astronomy course and consent of instructor. Open to a limited number of highly qualified undergraduate students interested in astronomy teaching at the college level. Students will participate in a seminar on educational methods and engage in tutorial or laboratory teaching under supervision of a faculty member. Staff
The field of bioengineering applies engineering principles and practices to living things, integrating biological and medical sciences with advanced technology to help people live longer and healthier lives. No other field fulfills the potential for interdisciplinary research and education more than bioengineering. We anticipate future breakthroughs ranging from the design of drugs customized to an individual’s genome, to tiny implantable drug delivery devices, to software and components that allow researchers to design bacteria like electronic circuits.

Bioengineering at UC Berkeley is supported by exceptional faculty, strong ties to other departments on campus, and close collaborations with institutions like UC San Francisco and Lawrence Berkeley National Lab. Our curriculum provides a solid foundation in engineering and the biological sciences, with the freedom to explore a variety of topics and specialize in advanced areas of research. Our courses in bioengineering and research in a rapidly growing discipline provides opportunities on both campuses. The program awards the graduate degree (Ph.D.) in bioengineering, and who have completed the necessary prerequisites for the minor requirements. Information is available in 306 Stanley Hall.

Graduate Program

The graduate degree (Ph.D.) in bioengineering is administered by the Joint UCSF/UCB Bioengineering Graduate Group, administered at Berkeley by the Department of Bioengineering. This program is open to both incoming and transfer students interested in bioengineering and who are not majoring in bioengineering. Students can pursue graduate and pre-med. Bioengineering graduates may enter industry, go on to medical school, and/or pursue graduate studies in bioengineering and related disciplines.

Curriculum and Requirements for the Bachelor’s Degree

Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in this catalog. In addition, students must complete the requirements for the College of Engineering and the bioengineering program. Full details on these requirements can be found in the College of Engineering. A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement. Please also see our seven defined concentrations in the announcement for suggested programs of study.

Joint Major in Bioengineering/ Materials Science and Engineering

The Department of Bioengineering offers a joint major with The Department of Materials Science and Engineering for students who have an interest in the field of biomaterials. The broad curriculum includes exposure to fundamental courses in engineering and biology and theories of different experimental methods, techniques, and instrumentation used. Students taking this joint major will successfully compete for jobs in the field of biomaterials in academia, industry, and government.

Bioengineering Minor

The department offers a minor in bioengineering that is open to all students who are not majoring in bioengineering and who have completed the necessary prerequisites for the minor requirements.

Overview

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restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Freshman or sophomore consent of instructor. Supervised independent study for lower division students. (F,SP) Staff

Upper Division Courses

100. Ethics in Science and Engineering. (3) Three hours of lecture per week. The goal of this seminar course is to present the issues of professional conduct in the practice of engineering, research, publication, public and private discourses, and in managing professional and financial conflicts. The method is through historical didactic presentations, case studies, presentations of methods for problem solving in ethical contexts, and classroom debates on contemporary ethical issues. The faculty will be drawn from national experts and faculty from religious studies, journalism, and law from the UC Berkeley campus. (F) Head-Gordon

101. Instrumentation in Biology and Medicine. (4) Three hours of lecture and three hours of discussion/computer laboratory per week. Prerequisites: Electrical Engineering 100, Mathematics 53, 54, Physics 7A-7B, or consent of instructor. This course teaches the fundamental principles underlying modern instrumentation used in biology and medicine. Organized around three classes of instruments—bioelectrochemical, optical, and microfluidic—the course takes an integrative approach to measurement theory and practice by presenting and analyzing example instruments currently used for biological and medical research. For each instrument, students will study the fundamentals of operation; methods of control, mechanisms of contrast, devices for detection, and methods for signal processing and error estimation. Current biological questions and medical problems investigated with each type of instrument will be discussed. (SP) Staff

102. Biomechanics. (4) Three hours of lecture and three hours of computer laboratory per week. Prerequisites: Math 53, 54; Physics 7A. This course introduces students to the physics of human organ systems, with an emphasis on quantitative problem solving, engineering-style modeling, and applications to clinical medicine. The course covers the basic principles of cellular physiology, including membrane transport and electrophysiology, and then takes a systems-by-systems approach to the physiology of various organs: cardiovascular, pulmonary, renal, and endocrine systems. Throughout, the course will feature discussions of clinical conditions associated with dysfunction in specific physiological parameters, as well as the role of medical devices and prostheses. This course is geared towards upper-division bioengineering students who wish to solidify their foundation in physiology, especially in preparation for a career in clinical medicine or the biomedical device industry. (SP) Kumar

110. Biomedical Physiology for Engineers. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 10, Biology 1A; Math 54 (may be taken concurrently for non-PhD students). This course introduces students to the physiology of human organ systems, with an emphasis on quantitative problem solving, engineering-style modeling, and applications to clinical medicine. The course covers the basic principles of cellular physiology, including membrane transport and electrophysiology, and then takes a systems-by-systems approach to the physiology of various organs: cardiovascular, pulmonary, renal, and endocrine systems. Throughout, the course will feature discussions of clinical conditions associated with dysfunction in specific physiological parameters, as well as the role of medical devices and prostheses. This course is geared towards upper-division bioengineering students who wish to solidify their foundation in physiology, especially in preparation for a career in clinical medicine or the biomedical device industry. (SP) Carey

113. Stem Cells and Technologies. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 54, Physics 7A, 102, or consent of instructor. This course develops and applies scaling laws and continuum and statistical mechanics to biomechanical phenomena over a range of length scales, from molecular to cellular levels. It is intended for senior undergraduate students who have been exposed to differential equations, mechanics, and certain aspects of modern biology. (SP) Mohammad

116. Cell and Tissue Engineering. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: Molecular and Cell Biology 110 or 110A, and Biology 102 or consent of instructor. Introduction to tissue engineering, analysis of cellular processes, and cell engineering. Topics include bioreactor and mass transport, tissue microenvironment, cell-matrix interaction, cell migration and cell mechanics, cell proliferation, stem cells, and cell manipulation. (SP) Li

117. Structural Aspects of Biomaterials. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 102, Biology 1A, Engineering 45, and Civil and Environmental Engineering 130 or 130N. This course covers the structure and mechanical functions of load bearing tissues and their replacements. Natural and synthetic load-bearing biomaterials for clinical applications are reviewed. Bio-compatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical

issues and constitutive relationships of tissues are covered in order to design biomaterial replacements for structural function. Material selection for load bearing applications is covered. Prerequisites: Mechanical, dental, and cardiology are addressed. Mechanical design for longevity including topics of fatigue, wear, and fracture are reviewed. Case studies that examine failures of devices are presented. This course includes a teaching/design laboratory component, which involves design analysis of medical devices and outreach teaching to the public community. Seminar-based project work is introduced the semester for design analysis. In addition to technical content, this course involves rigorous technical writing assignments, oral communication skill development and team-work. Also listed as Mechanical Engineering C117, (SP) Przybylek

118. Biological Performance of Materials. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C105B/Mechanical Engineering C105B or equivalent, 102 and 104, Engineering 45, and Molecular and Cell Biology 130 is recommended. This course is intended to give students the opportunity to expand their knowledge of topics related to biomedical materials selection and design. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biomechanical and soft tissue implants, drug delivery, tissue engineering, and biotechnology. Also listed as Materials Science and Engineering C118. (F) Healy

119. Orthopedic Biomechanics. (4) Three hours of lecture and one hour of discussion/computer workshop per week. Prerequisites: Civil and Environmental Engineering 130 or 130N. Formerly C176. Students will learn the application of engineering concepts including statics, dynamics, optimization theory, composite beam theory, beam-on-elastodynamic foundation, Hertz contact theory and materials behavior. Topics will include forces and moments acting on human joints; composition and mechanical behavior of orthopedic biomaterials; design/analysis of artificial joint, spine, and fracture fixation prostheses; musculoskeletal tissues including bone, cartilage, tendon, ligament, and muscle; osteoporosis and fracture-risk prediction of bones; and bone adaptation. Students will be challenged in a MATLAB-based project to integrate the course material in an attempt to gain insight into contemporary design/analysis/problems. Also listed as Mechanical Engineering C176. (SP) Keaveny

121. Introduction to Micro and Nanobiotechnology: BioMEMS. (3) Three hours of lecture per week. Prerequisites: Chemistry 3B and Physics 7B or consent of instructor. Biophysical and chemical principles of biomedical microelectromechanical systems and their applications to modern biological phenomena and clinical applications. Micro- and nanoscale devices for the manipulation of cells and biomolecules. Topics include solid-state transducers, optical transducers, electrochemical transducers, biomedical microelectronics, microfluidics, and hybrid integration of microfabrication technology. (F) L. Lee

121L. BioMEMs and BioNanotechnology Laboratory. (4) Six hours of laboratory and two hours of lecture per week. Prerequisites: 121, Chemistry 130A, Electrical Engineering 143, Mechanical Engineering 150A, or Chemical Engineering 150A. Hands-on project experience in applying microfabrication techniques to problems in biotechnology using the latest micro- and nanoscale biotechnological tools. Excursion to micro- and analysis of micro- and nanoscale device interfaces. Students will give poster sessions and oral presentations on their results. (F) L. Lee, Dueck

125. Introduction to Robotics. (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: Mechanical Engineering 120 or equivalent, consent of instructor. An introduction to the kinematics, dynamics, and control of robotic manipulators, robotic vision, and sensing. The course covers forward and inverse kinematics of serial chain manipulators, the manipulator Jacobian,
force relations, dynamics, and control. It presents elementary principles on proximity, tactile, and force sensing, vision sensors, camera calibration, stereo correspondence detection. The course contains case studies that include applications of robotics in active perception, medical robotics, and other areas. Also listed as Electrical Engineering C125. (F) Staff

131. Introduction to Computational Molecular and Cell Biology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biostatistics 1A, Mathematics 53 and 54, and either Engineering 7 or 77, Computer Science 61A, or Computer Science 61B; or consent of instructor. Topics include computational tools for the analysis of genomics from bioinformatic tools and databases used for the prediction of protein function and structure. It is designed to impart both a theoretical understanding of popular computational methods and an ability to assess their application with protein sequence analysis methods applied to real data. This class includes no programming, and no programming background is required. Also listed as Plant and Microbial Biology C144. (F) Sjolander

C144L. Protein Informatics Laboratory. (2) Six hours of laboratory per week. Prerequisites: C144 (may be taken concurrently, not required) or consent of instructor. This course is intended to introduce students to a variety of bioinformatics techniques that are used to analyze and interpret the characteristics of DNA and protein sequences, and to use computational techniques in synthetic biology. Students will study biological and evolutionary aspects of proteins and nucleic acids, and study and compare the underlying principles of these systems. The course is designed to introduce students to the use of bioinformatics tools and databases used for the prediction of protein function and structure. It is designed to impart both a theoretical understanding of popular computational methods and an ability to assess their application with protein sequence analysis methods applied to real data. This class includes no programming, and no programming background is required. Also listed as Plant and Microbial Biology C144L. (F) Sjolander

C145. Introductory Electronic Transducers Laboratory. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Electrical Engineering 40. Laboratory exercises exploring a variety of electronic transducers for measuring physical quantities such as temperature, force, displacement, sound, pressure, light, ion concentration, position, low-level signals, and analog signal processing; and the use of microcomputers for digital sampling and display. Lectures cover principles explored in the laboratory exercises, as well as some experimental techniques. Also listed as Electrical Engineering C145L. (F) Darenzo

C145M. Introductory Microcomputer Interfacing Laboratory. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Electrical Engineering 40. Laboratory exercises exploring basic interfacing circuits and writing 20-100 line C programs for data acquisition, storage, analysis, display, and control. Use of the IBM PC with microprogrammable digital counter/timer, parallel I/O port. Circuit components include anti-aliasing filters, the S/H amplifier, A/D and D/A converters. Exercises include effects of aliasing in periodic sampling, fast Fourier transforms of basic waveforms, simple circuits and basic concepts for leak- age reduction, Fourier analysis of the human voice, digital filters, and control using Fourier deconvolution. Lectures cover principles explored in the laboratory exercises, as well as some experimental techniques. Also listed as Electrical Engineering C145M. (SP) Darenzo

150. Introduction to Biomaterials and Biocompatible Materials. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A and Chemistry 14A. This course is intended for the bioengineering or engineering undergraduate students interested in acquiring a background in recent development of bio-nanomaterials and bio-bionanotechnol- ogy. Topics to be covered include the fundamental properties of biological basis building blocks, their assembly principles in nature, and their application to building functional materials and devices. The goal is to impart the basic knowledge of the phenomena, and their applications in the field of biomaterials and bioengineering. (F) S. W. Lee

151. Micro/Nanofluidics for Bioengineering and Lab-On-A-Chip. (4) Students will receive no credit for 151 after taking 251. Three hours of lecture and one hour of discussion per week. Introduction and in-depth coverage of micro- and nanofluidic systems and devices in microfluidic and nanofluidic systems as part of an end-of-semester project. (F) R. W. Lee

164. Optics and Microscopy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Physics 7A-7B or 8A-8B or equivalent. This course teaches fundamental principles of optics and examines contemporary methods of optical microscopy for cells and tissues. Students will learn simple and advanced optical systems, calculate system performance, and apply imaging techniques including transmission, reflection, phase, and fluorescence microscopy to biological samples. The course will also cover the design and construction of microscopes and the use of optical systems in modern microscopy. Students will provide experimental and theoretical demonstrations in the form of a final report. (SP) Herr

165. Image Processing and Reconstruction. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C141 or C142 or equivalent. This course teaches the fundamentals of optical imaging. The course will cover the principles of image formation and processing, as well as the applications of these principles to various imaging systems. The course will also cover the design and construction of microscopes and the use of optical systems in modern microscopy. Students will provide experimental and theoretical demonstrations in the form of a final report. (SP) Herr

168. Practical Light Microscopy. (3) Three hours of lecture and three hours of laboratory per week. This laboratory course is designed for students interested in obtaining practical hands-on training in optical imaging and instrumentation. Using a combination of lenses, cameras, and data acquisition equipment, students will construct simple light microscopes that introduce basic concepts and limitations important in biomedical optical imaging. Topics include compound microscopes, Kohler illumination, oculars, condensers, and polarizing microscopes. Also listed as Biological and Medical Physics C160, Biological Imaging B120, basic programming ability in C or FORTRAN. Linear systems and Fourier transforms in two and three dimensions. Basic image processing. Theory and algorithms for image reconstruction from projections. Physics of imaging systems including magnetic resonance, X-ray tomography, positron emission tomography, ultrasound, and biomagnetic imaging. Data analysis including hypothesis testing, parameter estimation by least squares, and compartmental kinetic modelling. Field trips to medical imaging laboratories. Also listed as Electrical Engineering C145B. (F) Herr

190. Advanced Topics in Bioengineering. Course may be repeated for credit. One to four hours of lecture per week. Sections 1-3 to be graded on a letter-grade basis. Sections 4-6 to be graded on a pass/no pass basis. Prerequisites: Consent of instructor. These courses cover current topics of research interest in bioengineering. The course content may vary from semester to semester. (F) S. W. Lee

190A. Advanced Topics in Biomechanics and Tissue Engineering. (1-4) (F, SP)
C216. Macromolecular Science in Biotechnology and Medicine. (4) Three hours of lecture per week. Prerequisites: Bioengineering 115 or equivalent. Open to seniors with consent of instructor. Overview of the problems associated with the selection and function of polymers used in biotechnology and medicine. Principles of polymer science, polymer synthesis, and structure-property-performance relationships of polymers. Specific emphasis is placed on the performance of polymers in biological environments. Interactions between macrobiological systems and medical devices. (F) Mofrad

C217. Biomimetic Engineering—Engineering from Biology. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering or consent of instructor. Study of nature's solutions to specific problems with the aim of determining appropriate engineering analogs. Morphology, scaling, and design in organisms applied to engineering structures. Mechanical properties of living organisms and their application to engineering devices. Mechanical behavior of biological materials as governed by underlying microstructure, with the potential for synthesis into engineered materials. Trade-offs between redundancy and efficiency. Students will work in teams on projects where they will take examples of designs, concepts, and models from biology and determine their potential in specific engineering applications. Also listed as Integrative Biology C217 and Mechanical Engineering C217. (F) Dhawan

C218. Stem Cells and Directed Organogenesis. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will provide an overview of the basic biology of the embryonic stem cell (ESC). The course will include early embryonic development, ESC laboratories, biomaterials for directed differentiation and other stem cell manipulations, and clinical uses of stem cells. Also listed as Molecular and Cell Biology C237. (SP) Conboy

221. Introduction to Micro- and Nanobiotechnology: BioMEMS. (3) Three hours of lecture per week. Prerequisites: Chemistry 3B and Physics 7B or consent of instructor. Biophysical and chemical principles of microelectromechanical systems (MEMS) and biosensors (bio-MEMS) for the measurement of biological phenomena and clinical applications. Micro- and nano-scale devices for the manipulation of cells and biomolecules. Topics include solid-state transducers, optical transducers, electrochemical transducers, biomedical microelectronics, microfluidics, and hybrid integration of microfabrication technology. (F) L. Lee

C223. Polymer Engineering. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Chemical Engineering 130 or equivalent. A survey of the structure and mechanical properties of advanced engineering polymers. Topics include rubber elasticity, viscoelasticity, mechanical properties, properties of filled and reinforced polymer systems, and fracture mechanisms of various classes of polymers. The
course will discuss degradation schemes of polymers and long-term performance issues. The class will include polymer applications in bioengineering and medicine. Also listed as Mechanical Engineering C223.

F Staff

231. Introduction to Computational Molecular and Cellular Biology. (4) Students will receive no credit for 231 after taking 131. Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics C100A or 102 or similar background in differential equations and probability. Coursework in molecular cell biology or biochemistry background in differential equations and probability. (F) Holmes

235. Frontiers in Microbial Systems Biology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Designed for graduates with backgrounds in biological and chemical equations and probability. Coursework in molecular cell biology or biochemistry helpful. This course is aimed at graduate and advanced undergraduate students from the (bio) engineering, molecular and genomics sciences interested in bioinformatics. Research-oriented introduction to current topics in systems biology. Focusing mainly on two well studied microbiological model systems—the chemotaxis network and Lambda bacteriophage infection—the class systematically introduces key concepts and techniques for biological network deduction, modelling, analysis, evolution and synthetic network design. Students analyze approaches from the quantitative sciences such as deterministic modelling, stochastic processes, non-linear dynamics, control theory, information theory, graph theory, etc.—on understanding interactions within and between processes, including (stochastic) gene regulation, signalling, network evolution, and synthetic network design. The course aims identify unsolved problems and discusses possible novel approaches while encouraging students to develop ideas to explore new directions in their own research. (F) Arkin, Bischop-Pfeifer, Wolf

241. Probabilistic Modeling, Genomics, and Jurasic Park. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Mathematics C53 and C100A or 102 or similar background in differential equations and probability. This class satisfies American Cultures requirement. Also listed as Plant and Microbial Biology C244L. Protein Informatics Laboratory. (2) Six hours of laboratory per week. Prerequisites: C244 (can be taken concurrently, not required) or consent of instructor. This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be taken concurrently with C244 (provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take the course individually and programming is performed in this class, and no prior programming experience is required. Also listed as Plant and Microbial Biology C244L.

251. Micro/Nanofluids for Bioengineering and Lab-On-a-Chip. (4) Three hours of lecture and one hour of discussion per week. Introduction and in-depth treatment of theory relevant to fluid flow in microfluidic and nanofluidic systems supplemented by critical assessment of recent research and applications drawn from the literature. Topics include low Reynolds Number flow, mass transport including diffusion phenomena, and emphasis on electrokinetic systems and bioanalytical applications of said phenomena. (SP) Herr

265. Principles of Magnetic Resonance Imaging. (3) Three hours of lecture per week. Prerequisites: C165/ Electrical Engineering C149B, or Electrical Engineer- ing 120, or consent of instructor. Fundamentals of MRI including signal-to-noise ratio, resolution, and contrast as dictated by physics, pulse sequences, and instrumentation. Image reconstruction via 2D FFT and various methods, convolution-back projection and gridding methods and FFTs. Hardware for modern MRI scanners including main field, gradient fields, RF coils, and shim supplies. Software for MRI processing methods, such as 2D FT, RARE, SSPF, spiral, and other advanced imaging methods. Fundamental tradeoffs of tailoring hardware and pulse sequences to specific applications. The modern MRI “toolbox” will be introduced, including selecting a slice or volume, fast imaging methods to avoid image artifacts due to physiologic motion, and methods for functional imaging. The fundamentals of MRI image artifacts (motion, magnetic susceptibility variations, etc.) will also be covered. The last part of the class will present emerging research opportunities and concomitant engineering research challenges including high-field MRI, hyper- polarization methods, spectroscopy, MRI of cardiac function, system cell tracking with MRI, and MRI. (SP) Conolly

C279. Occupational Biomechanics. (4) Three hours of lecture/fieldwork per week. Overview of ergonomics and occupational biomechanics. Course covers pathophysiology and risk factors of upper extremity and back loading at work, measurement of force and posture, models for risk assessment, anthropometry ap- plied to task and workstation design, tool design, and structure of successful ergonomics programs. Stu- dents will receive no credit for this course unless they conduct a workplace intervention. Also listed as Public Health C269C. (SP) Rempel

C280. Introduction to Nano-Science and Engi- neering. (3) Three hours of lecture per week. Prere- quisites: Major in physical science, such as chemistry, physics, etc., or engineering; consent of advisor or instructor. A three-module introduction to the funda- mental topics of Nano-Science and Engineering (NSE) and related research within chemistry, physics, biol- ogy, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; struc- tural and properties of materials, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core Curriculum requirement. Also listed as Biomedical Engineering C261, Nanoscale Science and Engi- neering C201, and Physics C201. (F,SP) Gronsky, S.W. Lee, Wu

290. Advanced Topics in Bioengineering. (1-3) Course may be repeated for credit. One hour of lecture per week per unit. One to three hours of lecture per week. Prerequisites: Consent of instructor. This course covers current topics of interest in bioengineering. The course content may vary from semes- ter to semester. (F,SP)

290A. Advanced Topics in Biomechanics and Tissue Engineering. (1-3) (F,SP)

290B. Advanced Topics in Bioinformatics and Genomics. (1-3) (F,SP)

290C. Topics in Fluid Mechanics. (1,2) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Lectures on specialized topics that build on current coursework in this department. Course content changes with the begin- ning of each semester that the course is offered. Topics may include transport and mixing, geophysical fluid dynamics, bio-fluid dynamics, oceanography, free surface flows, non Newtonian fluid mechanics, among other possibilities. Also listed as Environ Sci, Policy, and Management C291, Physics C290I, Math- ematics C290C, Chemical Engineering C295M, Civil Engineering C295M. (SP) Holmes

290D. Advanced Topics in Computational Bioengi- neering. (1-3) (F,SP)

C290D. Advanced Technical Communication: Proposals, Patents, and Presentations. (3) Three hours of lecture per week. Must be taken on a satisfac- tory/unsatisfactory basis. Prerequisites: Graduate standing, students must have passed their Ph.D. qual- ifying examination. This course will help the advanced Ph.D. student further develop critically important tech- nical communication skills through special seminars, interactive workshops, and student projects that will address the structure and creation of effective research papers, technical reports, patents, proposals, busi- ness plans, and oral presentations. One key concept will be being a ‘clear communicator’ and this is achieved through critical thinking regarding objectives and con- text. Examples will be drawn primarily from health care and bioengineering multidisciplinary applications. Also listed as Mechanical Engineering C290X. (SP) Keaveny, Pruitt

290F. Advanced Topics in Biomedical Imaging and Signal Processing. (1-3) (F,SP)

290H. Advanced Topics in Biomedical Imaging and Signal Processing. (1-3) (F,SP)

290I. Advanced Topics in Special Topics in Bioengi- neering. (1-3) (F,SP)

290J. Advanced Topics in Special Topics in Bioengi- neering. (1-3) (F,SP)

290K. Advanced Topics in Biomedical Systems Engi- neering. (1-3) (F,SP)

290L. Advanced Topics in Biomedical Systems Engi- neering. (1-3) (F,SP)

290M. Advanced Topics in Biomedical Systems Engi- neering. (1-3) (F,SP)

290N. Advanced Topics in Biomedical Systems Engi- neering. (1-3) (F,SP)

291. Group Studies, Seminars, or Group Research. (1-8) Course may be repeated for credit. Variable credit. Must be taken on a satisfactory/unsatisfactory basis. Advanced studies in various subjects through special seminars on topics to be selected each year. Informal group studies of special prob- lems, master’s theses, group projects, advanced design problems, or group research on complete problems for analysis and experimentation. (F,SP) Staff

299. Individual Study or Research. (1-12) Course may be repeated for credit. Must be taken on a satisfac- tory/unsatisfactory basis. Prerequisites: Graduate standing, students must have passed their Ph.D. qual- ifying examination. For advanced study or independent research under the direction of a faculty member. Must be taken on a satisfactory/unsatisfactory basis and may be repeated for credit. One hour of seminar per week. (F,SP) Staff
Professional Courses

301. Teaching Techniques for Bioengineering. (1) Course credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Weekly seminars and discussions of effective teaching techniques. Use of educational objectives, alternative forms of instruction, and special techniques for teaching key concepts and techniques in bioengineering. Course is intended to orient new graduate student instructors to teaching in the Bioengineering department at Berkeley. (F) Johnson

Biology

(College of Letters and Science or College of Natural Resources)

The three interdepartmental biology courses provide the foundation sequence for both majors and non-majors. The courses are taught by faculty from all three of the biology departments on campus. Although there is no department of biology at Berkeley, the name “biology” has been retained for these courses to reflect their interdepartmental character. Additional courses in the biological sciences may be found by consulting “Biological and Molecular Biology,” “Molecular and Cell Biology,” and “Plant and Microbial Biology” sections in this catalog.

Biology 1A/1B and 1B are each taught both semesters, and students may enroll in either (but not both) during either the fall or spring semester. Courses do not need to be taken in any particular order.

Lower Division Courses

1A. General Biology Lecture. (3) 1B may be taken before 1A. Three hours of lecture and one hour of discussion per week. Prerequisites: A grade of C- or better in Chemistry 3A or 112A; 1A must be taken concurrently (unless exempt by major). General introduction to cell structure and function, molecular and organismal genetics, animal development, form and function. Intended for biological sciences majors but open to all qualified students. (F,SP) Staff

1AL. General Biology Laboratory. (2) Formerly part of 1A. One and one-half hours of lecture and three hours of laboratory per week. Prerequisites: 1A must be taken concurrently. Laboratory that accompanies 1A lecture for biological science majors, but open to all qualified students. (F,SP) Staff

1B. General Biology. (4) Three hours of lecture, three hours of laboratory, and one hour of discussion per week. General introduction to plant development, form, and function; molecular genetics. Electives are also offered. Intended for students majoring in the biological sciences, but open to all qualified students. Students must take both Biology 1A and 1B to complete the sequence. Sponsoreed by Integrative Biology. (F,SP) Staff

11. Introduction to the Science of Living Organisms. (3) Students will receive no credit for 11 after receiving credit for both Integrative Biology 15 and 30. Three hours of lecture and one hour of discussion per week. Prerequisites: For students not majoring in a biological science and for non-science majors. Principles of biological organization and function using examples from plant and animal kingdoms. Similar in scope to Science 1, except that knowledge of physical sciences is neither required nor assumed. Sponsored by Plant and Microbial Biology. (SP) Jones, Qualls

11L. Laboratory for Biology 11. (2) Three hours of laboratory and one hour of discussion per week. Prerequisites: Must be taken concurrently with Biology 11. Laboratory designed to accompany Biology 11. Introduction to the Science of Living Organisms. Weekly laboratory exercises and one field trip to the UC Berkeley Botanical Garden. (SP) Jones, Qualls

Biophysics

(College of Letters and Science)

Graduate Group Office: 299 Life Sciences Addition, #2200, (510) 642-0379. biophysics.berkeley.edu

Chair: Ehud Isacoff, Ph.D.
Graduate Adviser: Susan Marqusee, M.D., Ph.D.

Professors

Thomas C. Alber, Ph.D. Massachusetts Institute of Technology. Protein folding, stability, and function
Adam Arkin, Ph.D. California Institute of Technology. Computational biology
James M. Berger, Ph.D. Harvard University. Crystallographic and biochemical studies of protein machines
Carl C. Bustamante, Ph.D. University of California, Berkeley. Development and application of single molecule methods to the study of nucleic acid-binding molecular motors, protein and RNA folding and mechanical properties of macromolecules
Steven Chu, Ph.D. University of California, Berkeley. Atomic, polymer, and cell biology and molecular and cell biology
Yang Dan, Ph.D. Columbia University. Information processing by brain neuronal circuits
Jennifer A. Gouzoua, Ph.D. Harvard University. Ribozymes and RNA machines
Robert Dudley, Ph.D. University of Cambridge. Biophysics
Graham Fleming, Ph.D. University of London. Physical chemistry
John G. Forte, Ph.D. University of Pennsylvania. Membrane proteins, transport and energetics
Ralph D. Freeman, O.D. Ohio State University; Ph.D. University of California, Berkeley. Optometry
Robert J. Full, Ph.D. State University of New York, Buffalo. Comparative biomechanics, physiology, and functional morphology
Jack Gallant, Ph.D. Yale University. Vision and visual perception
Wayne M. Getz, Ph.D. University of Witwatersrand, South Africa. Population modeling, epidemiology, resource and wildlife conservation, evolution, and management
Donald A. Glaser, Ph.D., Sc.D. California Institute of Technology. Psychophysics and theoretical physics, psychophysics of vision, biotechnology
Teresa Head-Gordon, Ph.D. Carnegie Mellon University. Theoretical chemistry
Ehud Isacoff, Ph.D. McGill University. Potassium channels, synaptic plasticity
Sung-Hou Kim, Ph.D. University of Pittsburgh. Biophysical chemistry
Stanley A. Klein, Ph.D. Brandeis University. Optometry, spatial vision, psychophysical methods and vision test design, near-infrared analysis of visual processes
Robert Knight, M.D. Mount Sinai. Attention and memory, neuropsychology and physiology, cognitive neuroscience
Miri A. R. Koehl, Ph.D. Duke University. Invertebrate functional morphology and biomechanics
Richard Kramer, Ph.D. University of California, Berkeley. Intracellular signalin mechanisms
John Kurtian, Ph.D. Massachusetts Institute of Technology. Structural and functional studies of signal transduction and DNA replication
Harold Lecar, Ph.D. Columbia University. Neural biophysics, excitable membranes
Terry E. Machacek, Ph.D. University of California, Los Angeles. Epithelial transport, cellular and membrane physiology
Susan Marqusee, Ph.D., M.D. Stanford University. Protein folding and structure
Richard A. Mathies, Ph.D. Cornell University. Biophysical, bioanalytical, and chemical biophysics
Eva Nogales, Ph.D. University of Keele. Structure of biological self-assembling systems
George F. Oster, Ph.D. Columbia University. Mathematical models in cell and developmental biology
Dan Rokitsas, Ph.D. Cornell University. Theoretical, statistical, and many body theory
Boris Rubinsky, Ph.D. Massachusetts Institute of Technology. Heat, mass transfer, cryopreservation
Friedrich Treschons, Ph.D. University of California, Berkeley. Auditory physiology, computational neuroscience
David E. Wehmer, Ph.D. University of California, Berkeley. Biophysical chemistry
Evon Williams, Ph.D. University of California, Los Angeles. Epithelial transport, cellular and membrane physiology
Robert S. Zucker, Ph.D. Stanford University. Cellular neurophysiology, synaptic biophysics

Associate Professors

Steven E. Brenner, Ph.D. University of Cambridge. Computational biology
Abby Dernburg, Ph.D. University of California, San Francisco. Chromosomal organization and reorganization during meiosis
Jame H. Doudna, Ph.D. Yale University. Molecular basis for protein synthesis by the ribosome
Michael Eisen, Ph.D. University of California, San Francisco. Genomics, evolution, and bioinformatics
Dan Fletcher, Ph.D. Stanford University. Microjet drug delivery
Jay Groves, Ph.D. Stanford University. Principles of molecular organization in cell membranes
Kimmen Stjandar, Ph.D. University of California, Santa Cruz. Phylogenomics
Lydia Soha, Ph.D. Harvard University. Micro-nano engineering

Assistant Professors

Rachel Brem, Ph.D. University of California, San Francisco. Genetics of regulatory variation
Lu Chen, Ph.D. University of Southern California. Mechanisms of synapse formation during development and synapse modification in plasticity
Mike DeWeese, Ph.D. Princeton University. Theoretical and experimental neuroscience
Philip Gesell, Ph.D. University of California, Berkeley. Theoretical chemistry
Ian Holdsworth, Ph.D. University of Cambridge. Computational biogenomics
Bryan A. Klant, Ph.D. University of Chicago. Molecular mechanism of protein translocation across membranes
Sanjay Kumar, M.D., Ph.D. Johns Hopkins University School of Medicine, Molecular biophysics, tissue engineering
Ham Lim, Ph.D. University of Cambridge. Systems biology, microbiology, and genome evolution
Jan T. Liphard, Ph.D. University of Cambridge. Biochemistry and biophysics
Ahmet Yildiz, Ph.D. University of Illinois, Urbana-Champaign. Single molecule fluorescence

Program Overview

The graduate program is administered by the Graduate Group in Biophysics. This campuswide, interdepartmental group provides an opportunity for interested students to receive training leading to the Ph.D. in biophysics. Students may work under the supervision of any faculty member belonging to the group.

Students interested in pursuing graduate work in biophysics typically acquire undergraduate training in one of the basic physical or biological sciences and take key courses in biology, physics, and chemistry during the first two years at Berkeley. Relevant graduate courses are listed below. Additional courses may be found under the Departments of Molecular and Cell Biology, Chemistry, Physics, and Bioengineering. Further information is available from the Graduate Office in 299 LSA or at biophysics.berkeley.edu.

Upper Division Courses

H196. Honors Research in Biophysics. (4) Course may be repeated for a maximum of 12 units. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing; minimum GPA 3.2; consent of instructor. Supervised independent honors research on topics specific to biophysics, followed by brief written report and presentation at year-end student colloquium. (F,SP) Staff

Graduate Courses

292. Research. (3-12) Course may be repeated for credit. Laboratory research, conference. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual research under the supervision of a faculty member. (F,SP) Staff

293A-293B. Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS). (2,2) Two hours of seminar per week. Credit and grade to be awarded on completion of sequence. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 292. Seminar on presentation and evaluation of results in area of student’s individual research interests. (F) Staff
Biostatistics
(College of Letters and Science and School of Public Health)

Group Major Office: 101 Haviland Hall #7358, (510) 642-3480
www.stat.berkeley.edu/biostat
Chair: Sandrine Dudoit, Ph.D.

Professors
David R. Brillinger, Ph.D. Princeton University. Random process data analysis
David A. Freedman, Ph.D. Princeton University. Statistical inference, probability
Nicholas P. Jewett, Ph.D. University of Edinburgh. Sampling and survival analysis
Michael J. Klass, Ph.D. Theoretical and applied probability
Sophia Rabe-Hesketh, Ph.D. Kings College London. Generalized linear mixed models and latent variable models
John Rice, Ph.D. University of California, Berkeley. Applied statistics, stochastic processes in neurophysiology
Steve Selvin, Ph.D. University of California, Berkeley. Application of data analysis and graphical methods to environmental and epidemiological problems
Terrence J. Speed, Ph.D. Monash (Australia). Applied statistics
Michael E. Tarter, Ph.D. University of California, Los Angeles. Computer and graphical methodology

Maureen Lahiff, Ph.D. University of Chicago. Applied biostatistics
Alan E. Hubbard, Ph.D. University of California, Berkeley. Application of biostatistics


Preparation for Graduate Study
For the M.A., minimum entrance requirements consist of two full-year courses in calculus, a course in linear algebra, and a one-year course in statistics or biostatistics. Those applying for the Ph.D. should possess a strong quantitative background exceeding the minimum requirements for the M.A.

Research Facilities
Graduate students in the group have direct access to a variety of specialized computing resources, as well as the services of the campus computing facilities. Research activity of the faculty currently includes biostatistical computing, statistical issues in AIDS research, survival analysis, environmental health, epidemiology, and statistical methods in genetics and computational biology. Projects in research areas provide opportunities for both practical experience and individual research. Cooperation with other departments allows unusually broad and effective training in both theoretical and applied directions.

Courses of Instruction
A wide variety of appropriate courses from a number of departments is available to candidates for either the M.A. or the Ph.D. degree, giving both programs considerable flexibility. Such flexibility allows students in consultation with the graduate adviser to arrange an individualized program. See “Public Health” and “Statistics” in this catalog for course listings.

Buddhist Studies
(College of Letters and Science)

Group Office: 104 Durant Hall, (510) 642-3480
buddhiststudies.berkeley.edu
Director: Robert Sharf

Group in Buddhist Studies
Undergraduate Program
There is currently no undergraduate degree in Buddhist Studies. However, the Department of East Asian Languages and Cultures offers a minor in Buddhism, and the Group in Religious Studies offers an emphasis in Buddhism. Undergraduate courses with a Buddhism emphasis can also be found in the Departments of History of Art and South and Southeast Asian Studies.

Graduate Program
The Berkeley Group in Buddhist Studies offers an interdisciplinary program of study and research leading to a Ph.D. degree in Buddhist studies. The group, which cooperates closely with the Departments of South and Southeast Asian Studies (SSEAS) and East Asian Languages and Cultures (EALC), emphasizes the study of Buddhism in its many forms within its Asian historical and cultural context.

Preparation for Graduate Study
For the M.A., minimum entrance requirements consist of two full-year courses in calculus, a course in linear algebra, and a one-year course in statistics or biostatistics. Those applying for the Ph.D. should possess a strong quantitative background exceeding the minimum requirements for the M.A.

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Director: Robert Sharf

Professors
Robert P. Goldman, Ph.D. University of Pennsylvania. (South and Southeast Asian Studies)
Eleanor Rosch, Ph.D. Harvard University. (Psychology; Language and culture; Environment)
Alexander von Rogowski, Ph.D. Harvard University. (Religion; History of Art; Environment)
Robert Sharf (The D. H. Chen Distinguished Professor of Buddhist Studies). Ph.D. University of Michigan. (East Asian Languages and Cultures)
Joanna Williams, Ph.D. Harvard University. (History of Art; East Asian Languages and Cultures)
Sarah Diehl, Thomas S. Darnell, and Keith W. Lewis. (Comparative Religion)

Associate Professors
Patricia Berger, Ph.D. University of California. (History of Art; East Asian Languages and Cultures)
Perspective Edwards, Ph.D. Monash University. (South and Southeast Asian Studies)
Gregory Levine, Ph.D. Princeton University. (History of Art; East Asian Languages and Cultures)

Assistant Professor
Jacob Dalton, Ph.D. University of Michigan. (East Asian Languages and Cultures; South and Southeast Asian Studies)

Graduate Adviser: Please consult the Buddhist studies office at (510) 642-3480.

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Gregory Levine, Ph.D. Princeton University. (History of Art; East Asian Languages and Cultures)

Assistant Professor
Jacob Dalton, Ph.D. University of Michigan. (East Asian Languages and Cultures; South and Southeast Asian Studies)

Graduate Adviser: Please consult the Buddhist studies office at (510) 642-3480.
topics vary from department to department and semester to semester. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topics vary. One hour of seminar per week per unit. Sections 1-2 to be graded on a letter-grade basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and other small seminar participants. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP) Staff

C50. Introduction to the Study of Buddhism. (4) Three hours of lecture per week. Formerly Buddhism C50. This introduction to the study of Buddhism will consider materials drawn from various Buddhist traditions of Asia, from ancient times down to the present day. However, the course is not intended to be a comprehensive or systematic survey; rather than aiming at breadth, the course is designed around key themes such as ritual, image veneration, mysticism, meditation, and death. The overarching emphasis throughout the course will be on the hermeneutic difficulties attendant upon the study of religion in general, and Buddhism in particular. Also listed as South and Southeast Asian Studies C52 and East Asian Languages and Cultures C50. (F,SP) Staff

84. Sophomore Seminar. (1-2) Course may be repeated for credit as topics vary. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for 8 weeks. Sections 1-2 to be graded on a passed/not passed basis, Sections 3-4 to be graded on a letter-grade basis. Prerequisites: Consent of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from semester to department and semester to semester. (F,SP)

98. Directed Group Study for Lower Division Students. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Small group instruction in topics not covered by regularly scheduled courses. (F,SP) Staff

99. Independent Study for Lower Division Students. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Independent study in topics not covered by regularly scheduled courses. (F,SP) Staff

Upper Division Courses

C114. Tibetan Buddhism. (4) Three hours of lecture per week. Formerly Buddhism 114. This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We will begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet. Also listed as South Asian C114 and Tibetan C114. (F,SP) Staff

C115. Japanese Buddhism. (4) Three hours of lecture per week. Formerly Buddhism 115. A critical survey of the main themes in the history of Japanese Buddhism as they are treated in modern scholarship. The course covers the transmission of Buddhism from China and subsequent development in Japan in the Tendai, Shingon, Pure Land, Nichiren, and Zen schools of Buddhism; the organization and function of Buddhist institutions (monastic and lay) in Japanese society; the interaction between Buddhism and other modes of religious belief and practice prevalent in Japan, notably those that go under the headings of "Shinto" and "folk religion." Also listed as Japanese C115. (F,SP) Staff

C120. Buddhism on the Silk Road. (4) Three hours of lecture per week. Formerly Buddhism 120. This course is both an historical introduction to the Silk Road, understood as an ever-changing series of peoples, places, and traditions, as well as an introduction to the major schools of Buddhism, and to the Buddhist iconography in the modern period. In this way, the class is intended both as a guide to the extant textual, archaeological, and art historical evidence from the Silk Road but also as a way to begin thinking about what it means to study Asia and Asian religions in the context of a contemporary American classroom. All readings will be in English. Also listed as East Asian Languages and Cultures C122. (F,SP) Staff

C122. Buddhist Meditation: Historical, Doctrinal, and Ethnographic Perspectives. (4) Three hours of lecture and one hour of discussion per week. This course will explore the nature and function of Buddhist meditation as it developed within various Buddhist traditions of South, Southeast, and East Asia. Emphasis will be on the historical evolution, doctrinal foundations, and monastic and extra-monastic regimes associated with Buddhist meditation practices. We will seek to use a wide variety of primary and secondary readings, as well as visual materials (including films) to attempt to place the historical and doctrinal accounts within their cultural and institutional contexts. Also listed as East Asian Languages and Cultures C122. (F,SP) Staff

C124. Buddhism and Film. (4) Two to three hours of lecture and three to four hours of discussion/film screening per week. Formerly Buddhism 124. This course will use the medium of film to explore various themes in the study of Buddhism. At the same time, we will use ideas culled from Buddhism to reflect back on the nature and power of film. We will be screening a wide variety of international and domestic films, some of which include both Tibetan and Nepalese films and documentaries. Themes to be considered include the epistemic status of the viewing subject, the place of imagination and visualization in Buddhist meditation and ritual, contesting Asian and Western notions of Buddhist authority, Orientalism, and the role of projection and fantasy in cinematic representations of Buddhism. The films will be accompanied by primary and secondary readings in Buddhist history and literature, religious studies, and film theory. Also listed as East Asian Languages and Cultures C124. (F,SP) Staff

C126. Buddhism and the Environment. (4) Three to four hours of lecture per week. Prerequisites: One lower-division course in Buddhist Studies or consent of instructor. A thematic course on Buddhist perspectives on nature and Buddhist responses to environmental issues. The first half of the course focuses on East Asian Buddhist cosmological and doctrinal perspectives on the place of the human in nature and the relationship between the salvific goals of Buddhism and nature. The second half of the course will examine environmentalism and activism in relation to environmental issues in contemporary Southeast Asia, East Asia, and America. Also listed as East Asian Languages and Cultures C126. (F,SP) Staff

C128. Buddhism in Contemporary Society. (4) Three hours of lecture per week. Prerequisites: One lower-division course in Buddhist Studies or consent of instructor. This course will introduce students to the Zen Buddhist traditions of China and Japan, drawing on a variety of disciplinary perspectives (history, anthropology, philosophy, and so on). The course will also explore the political and social problems (problems involved in interpretation) entailed in understanding a sophisticated religious tradition that emerged in a time and culture very different from our own. Also listed as East Asian Languages and Cultures C128. (F,SP) Staff

C140. Readings in Chinese Buddhist Texts. (4) Three hours of lecture per week. Prerequisites: One lower-division course in Chinese. This course is intended for students who already have some facility in literary Chinese. Three hours of lecture per week. Prerequisites: 110A. One semester of classical Chinese. Prior background in the epistemology and theory and thought is helpful but not required. This course is an introduction to the study of medieval Buddhist literature written in classical Chinese. We will read samples from a variety of genres, including early Chinese translations of Sanskrit and Central Asian Buddhist scriptures, indigenous Chinese commentaries, philosophical treatises, and sectarian works, including Confucian (Zhen) commentaries. Must be taken on a passed/not passed basis. Prerequisites: Introduction to Courses and Curricula section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Junior or Senior standing. Small group instruction not covered by regularly scheduled courses. (F,SP) Williams

C145. Japanese Buddhism. (4) Three hours of lecture per week. Prerequisites: One lower-division course in Buddhist Studies or consent of instructor. This course focuses on Japanese Buddhism during the late 19th and early 20th centuries in its encounter with modernity, colonialism, and immigration. Looking at the Japanese diaspora around the Pacific Rim, we will begin with Japanese Buddhism’s relationship with the Meiji state, State Shinto, Christianity, and the West. Regions covered include Manchuria, Korea, Hawaii, the U.S., Canada, and Brazil. Also listed as Japanese C145. (F,SP) Williams

198. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Junior or Senior standing. Small group instruction not covered by regularly scheduled courses. (F,SP) Staff

199. Independent Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Junior or Senior standing. Independent study in topics not covered by regularly scheduled courses. (F,SP) Staff

Graduate Courses

200. Proseminar in Buddhist Studies. (1) Course may be repeated for credit as topic varies. Three hours of seminar every three to four weeks. Prerequisites: Graduate standing in the Buddhist Studies Ph.D. program or consent of instructor. This seminar provides an opportunity for all students in the group in Buddhist Studies to gather together on a regular basis to discuss recent theoretically significant works in the field of Buddhist Studies, as well as pertinent and important works in related disciplines (anthropology, art history, literature, history, philosophy, and religious studies). The content of the course will be adjusted from semester to semester so as to best meet the needs and interests of the students, but the focus will be on recent works representing the "state of the field." (F,SP) Staff

220. Seminar in Buddhist and Buddhism Texts. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Content to be arranged according to student interest and needs. The course will normally focus on
classical Buddhist texts that exist in multiple recensions and languages, including Chinese, Sanskrit, and Tibetan. Also listed as East Asian Languages and Cultures C220. (F,SP) Staff

C223. Readings in Chinese Buddhist Texts. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Buddhism 223. This seminar will examine the major genres of Buddhist literature in Chinese, including translations of Sanskrit and Central Asian scriptures. Chinese commentaries, philosophical treatises, hagiographies, and sectarian works. It is intended for graduate students who already have some facility in classical Chinese. It will also serve as a tools and methods course, covering the basic reference works and secondary scholarship in the field of East Asian Buddhism. The content of the course will be adjusted from semester to semester to accommodate the needs and interests of students. Also listed as Chinese C223. (F,SP) Staff

C224. Readings in Tibetan Buddhist Texts. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. This seminar provides an introduction to a broad range of Tibetan Buddhist texts, as well as to the methods and resources for their study. Readings for the course will be drawn from the following categories of Tibetan literature: (1) chronicles and histories, (2) biographical literature, (3) doctrinal treatises, (4) biographical treatises, (5) canonical texts, (6) ritual manuals, and (7) liturgical texts. The seminar is designed to be of interest to graduate students interested in premodern Tibet from any perspective (literature, religion, art, history, philosophy, law, etc.). Students are required to do all of the reading and attend all of the classes. Formerly Buddhism 224. This course will also introduce students to “tools and methods” for the study of Tibetan Buddhist literature, including standard lexical and bibliographic references, digital resources, and secondary literature in modern languages. The content of the course will vary from semester to semester to account for the needs and interests of particular students. Also listed as Tibetan C224. (F,SP) Staff

C225. Readings in Japanese Buddhist Texts. (2.4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Buddhism 225. This graduate seminar seminar will examine a broad range of Japanese Buddhist literature belonging to different historical periods and genres, including: (1) liturgical texts; (2) monastic records, rules, and ritual manuals; (3) doctrinal treatises; (4) biographies of monks; and (5) histories of Buddhism in Japan. The seminar is designed to be of interest to a range of graduate students working on premodern Japanese culture (literature, philosophy, intellectual history, religion, art, etc.). Students are required to do all of the reading in the original languages, which are classical Chinese (Kan-bun) and classical Japanese. The seminar will also serve as a “tools and methods” course, covering basic reference works for the study of Japanese Buddhist literature, as well as secondary scholarship in Japanese. The content of the course will be adjusted from semester to semester to accommodate the needs and interests of graduate students. Also listed as Japanese C225. (F,SP) Staff

C240. Readings in Chan and Zen Buddhist Literature. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: One year of classical Chinese or Kanbun, as well as previous study of East Asian or Classical Japanese culture. Formerly Buddhism 240. This graduate seminar is an intensive introduction to primary sources used in the study of Chan and Zen Buddhism. It is designed to be of interest to graduate students working on premodern Chinese and Japanese culture (literature, philosophy, intellectual history, religion, art, etc.). The seminar will also introduce students to Asian and Western language reference tools for the study of East Asian Buddhist literature as well as web resources. The content of the course will vary from semester to semester to best accommodate the needs and interests of students. Also listed as East Asian Languages and Cultures C240. (F,SP) Staff

298. Directed Study for Graduate Students. (1-2) Course may be repeated for credit. Hours to be arranged. Special tutorial or seminar on selected topics not covered by available courses or seminars. (F,SP) Staff

299. Thesis Preparation and Related Research. (1-8) Course may be repeated for credit as topics vary. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of thesis supervising major field adviser. (F,SP) Staff

601. Individual Study for Master’s Students. (1-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of graduate adviser. Individual study for the comprehensive or language requirement in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master’s degree. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of graduate adviser. Individual study for the comprehensive or language requirement in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D. degree. (F,SP) Staff

Business

Business Administration

(Walter A. Haas School of Business)

Office: S545 Student Services Building #1900
haas.berkeley.edu

Dean: Richard Lyons, Ph.D.

Associate Dean for Academic Affairs: Ganesh Iyer, Ph.D.
Senior Assistant Dean for Instruction: Jay Stowsky, Ph.D.

Directors:
David Gent, M.B.A. (Evening & Weekend M.B.A. Program)
Robert Gleeson, M.A., M.B.A. (Berkeley-Columbia Executive M.B.A. Program)
Erika Walker, M.B.A. (Berkeley-Stanford Graduate Program)
Julia Min Hwang, M.A. (M.B.A. Program)
Randa Kreitzman, M.B.A. (Master of Financial Engineering Program)
Miguel Villas-Boas, Ph.D. (Ph.D. Program)

Professors
Jonathan B. Berk (The Willis H. Booth Chair in Banking and Finance I), Ph.D. Yale University. Theoretical and empirical issues in finance, size-related anomalies
Severn Borenstein (The Ewald T. Grutter Chair in Banking and Public Policy), Ph.D. Massachusetts Institute of Technology. Industrial organization and government regulation, law and economics, applied microeconomic theory
Tom Campbell (Bank of America Chair), Ph.D. University of Chicago, J.D. Harvard University. Market microstructure, empirical issues in finance, size-related anomalies
Jennifer A. Chatman (The Paul J. Cortese Distinguished Professorship), Ph.D. University of California. Organizational culture, socialization, communication
Patricia Dechow (The Donald H. and Ruth F. Seiler Chair in Public Accounting), Ph.D. University of Rochester. Measurement, accrual performance, earnings management, financial accounting
Suri Dutta (The Kidon P. Kaszas Distinguished Professorship in Accounting and International Finance), Ph.D. University of Minnesota. Financial and managerial accounting
Robert H. Edelstein, Ph.D. Harvard University. Real estate finance and valuation
Paul J. Gertler (The Li K. Shan Foundation Chair in Health Management), Ph.D. University of Wisconsin. Economic development, industrial organization, health economics
Rashmi Gopinathan (The Edith B. Shaw Distinguished Chair in Health Management), Ph.D. University of California. Marketing strategy, decision making
Robert W. Helwey (The Chair in Real Estate Development), Ph.D. Princeton University. Real estate development and marketing
Benjamin K. Manalan (The Thomas and Anthony T. Distinguished Professorship in Finance), Ph.D. Massachusetts Institute of Technology. Theory of contracts, mechanisms and design
Teck H. Ho (The William R. and Dorothea M. Reidy Chair in Marketing), Ph.D. University of Pennsylvania. Quantitative marketing, market simulation, marketing research, computer science
Dori S. Hochbaum, Ph.D. University of Pennsylvania. Operations research, computer systems, algorithms
Ganeo K. Iyer (The Edgar F. Kaiser Chair in Business Administration), Ph.D. University of Pennsylvania. Distribution channels and information issues in marketing strategy
Dewey Z. Jaffe Jr. (The Willard W. and Helen J. Fails Foundation Chair in Finance II), Ph.D. Massachusetts Institute of Technology. International finance, financial futures and options, thrust industry
Michael L. Katz (The Samir Chair in Strategy and Leadership), Ph.D. Oxford University. Competitive strategy, microeconomics, managerial compensation
Jonathan M. Leonardi (The Stephen N. and Margaret K. Wexner Chair in Business Ethics), Ph.D. Harvard University. Employment, compensation, organizational culture
Martin Leff, Ph.D. Princeton University. Applied economics and macroeconomics of finance
David I. Levine (The Eugene and Catherine H. Trefethen Chair in Business Administration), Ph.D. Harvard University. Macroeconomics, liquidity issues, corporate investment
James R. Lincoln (The Mitsubishi Bank Chair in International Business and Finance), Ph.D. University of Wisconsin. Organization theory, Japanese management, international networks
Richard K. Lyons (The Bank of America Dean), Ph.D. Massachusetts Institute of Technology. International finance management, international economics
Thomas A. Mischak (The Core Jane Flood Research Chair in Business Administration), Ph.D. Stanford University. Economics mechanisms, decision theory
Barbara A. Mellens (The Milton W. Tillerson Chair in Business Administration), Ph.D. University of Illinois. Urban-Regional Social and Economic Functional measurement theory
John Morgan (The Gary and Sherron Kelbach Chair in Entrepreneurship), Ph.D. Pennsylvania State University. International business, competition, decision making, auctions, lotteries
David C. Mowery (The William A. and Betty H. Hackett Chair in Entrepreneurship), Ph.D. University of California. Economics and policy of technological change, business history
Terrance Odean (The Rudd Family Foundation Chair in Business Administration), Ph.D. University of California, Berkeley. Behavioral finance
Tord K. Petersen, Ph.D. University of Wisconsin. Career planning, systems, organizational behavior
John M. Quigley (The I. Donald Tener Distinguished Professorship in Affordable Housing and Urban Policy), Ph.D. Harvard University. Microeconomics, public finance
Pritschi Schuh, Ph.D. New York University. Consumer behavior, marketing research, marketing management
Andrew K. Rose (The Bernard J. Reffin, The Bass Family Professor of International Trade), Ph.D. Massachusetts Institute of Technology. International finance, macroeconomic policy
Mark E. Rubenstein, Ph.D. University of California, Los Angeles. Options and portfolio insurance
Carl Shapiro (The Transaction Chair in Business Strategy), Ph.D. Massachusetts Institute of Technology. Competitive strategy, innovation and intellectual property, antitrust and regulation
Stephen M. Shortell (The Blue Cross of California Distinguished Professorship in Policy and Management), Ph.D. University of Chicago. Healthcare management, public policy
Richard Sloan (The L.H. Penney Chair in Accounting), Ph.D. University of Rochester. Accounting, audit, financial reporting
Paul T. Spiller (The Jeffrey A. Jacobs Distinguished Professorship in Business and Technology), Ph.D. University of California, Berkeley. National organization, regulation and antitrust, regulation in developing countries
Richard H. Stanton, Ph.D. Stanford University. Securities valuation, contingent claims analysis, asset pricing, investor behavior and investment strategies of financial institutions
Barry M. Staw (The Lorraine Tyson Michiel Chair in Leadership and Communication I), Ph.D. Northwestern University. Decision making
David J. Teece (The Thomas W. Tutcher Chair in Global Business), Ph.D. University of California. Organizational economics and public policy
Philip E. Tetlock (The Lorraine Tyson Michiel Chair in Leadership and Communication II), Ph.D. Yale University. Political psychology, cognitive style, cognitive biases and decision making
Laura D. Tyson (The S. K. and Angela Chan Chair in Global Management), Ph.D. Massachusetts Institute of Technology. Comparative economic systems, economic development and planning, international trade, macroeconomics
Hal R. Varian, Ph.D. University of California, Berkeley. Information management
J. Miguel Villas-Boas (The J. Gary Shansby Chair in Marketing Strategy), Ph.D. Massachusetts Institute of Technology. Marketing models and strategy, new product development
David J. Vogel (The Solomon P. Lee Chair in Business Ethics), Ph.D. Princeton University. Business-government relationships
Nancy E. Wallace (The William R. and Dorothea M. Reidy Chair in Real Estate), Ph.D. University of California, Berkeley. Urban economics and real estate
Jung-Hoon Yu (The John A. and Marianne B. Lowery Chair in Business), Ph.D. Northwestern University. Finance, interest rates, forecasting

B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix=course satisfies R&Co requirement
AC suffix=course satisfies American Cultures requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Graduate Degrees

The Haas School of Business offers curricula leading to the Master of Business Administration degree, the Ph.D. degree, the Berkeley/UC Davis Master of Science in Engineering, and the Ph.D. degree. The Haas School offers three M.B.A. programs: a two-year program for full-time students, the Evening & Weekend M.B.A. Program, and the Berkeley-Columbia Executive M.B.A., a 19-month program for senior professionals.

Full-Time M.B.A. Program

The Full-Time M.B.A. Program at the Haas School of Business offers an unspecialized education in the fundamentals of management and in-depth exposure to the trends shaking the foundations of business. It brings together outstanding men and women from around the world and teaches them to be innovative leaders in any type of organization. At the end of the two-year program, students will receive the Berkeley M.B.A., embodying a spirit of challenge that will become their approach to leadership throughout their professional lives. Students learn to pursue new ideas aggressively, to defy convention, and to lead through innovation. In addition, the program is shaped by its flexible curricula, distinguished faculty, and strong connections with business in nearby Silicon Valley and the San Francisco Bay Area.

Students are marked by a unique blend of entrepreneurial drive and team spirit, underpinned by seriousness of purpose and a global outlook. With approximately 33 percent international students (evenly divided between Europe, Asia, and South America) and 30 percent women, the program reflects the diverse global environment in which its graduates will pursue their careers. The diverse student body of some 480 students represents more than 200 colleges and universities, 40 countries, and a wide range of academic and professional backgrounds.

The Haas School co-sponsors four concurrent-degree programs:
- M.B.A./J.D. with Boalt Hall or Hastings College of the Law;
- M.B.A./M.P.H. in health services management with the School of Public Health; and
- M.B.A./M.A. in international and area studies.

Curriculum. Students in the full-time M.B.A. program must complete 51 semester units to graduate: 21 units of core required courses and 30 units of elective courses. Students who pass a waiver exam may replace core courses with electives. There is also a two-year residency requirement. Haas students may apply 6 units of credit toward their degrees from courses outside the department, such as languages or law, and they are encouraged to take full advantage of the range of electives. Such as languages or law, and they are encouraged to take full advantage of the range of electives. Students may petition to take more than 6 units.

Students outside the M.B.A. program may take courses on a space-available basis only. They should contact the Full-Time M.B.A. Program office directly before attempting to register for courses.

Exchange Programs. The Haas School offers seven exchange programs with some of the finest business schools in Europe, Asia, and North America. The following schools participate: London Business School in Great Britain, Ecole des Hautes Etudes Commerciales (HEC) outside Paris, the Rotterdam School of Management in the Netherlands, SDA Bocconi in Milan, IESE in Barcelona, Hong Kong University of Science and Technology, and Columbia Business School in New York City. In addition, the Washington Campus Program in Washington, D.C., and the M.B.A. Enterprising Program in emerging economies provide Berkeley students with opportunities to enhance their education.

Admission. Applications for the Full-Time M.B.A. Program are accepted for fall entry only. Typically, the school receives 3,000-4,000 applications for about 240 positions in the entering class. The average age of entering students is 28 years, and all have significant full-time business experience before entering the program.

We admit candidates with substantial professional experience and considerable leadership potential who come from a diverse range of industries and backgrounds. In addition, we seek candidates who will add to the richness of the classroom experience and participate actively in the Haas community.

Applicants are strongly urged to submit completed applications as early as possible. Applications are reviewed beginning in November and are evaluated in four decision periods, or rounds.

Career Center. The Career Center guides students through their career-planning process. Job search preparation includes workshops on interviewing, resumes, networking, and industry-specific informational sessions. Workshops are presented by Career Center staff and outside experts. On-campus recruitment opportunities include formal job interviews and informal opportunities to meet company representatives.

Campus Visits. The Haas School encourages prospective students to attend information sessions at Berkeley. Organized by first-and second-year students, these "lunch and learn" events focus on the program from the student perspective. Information sessions are held daily at 1 p.m. throughout the academic year (September through mid-May, with the exception of school holidays). The sessions last approximately one hour. During a visit, prospective students may arrange to visit classes or request a no-host lunch and school tour with a current student. To arrange for information or to arrange for a classroom visit, call (510) 642-5610.

Off-Campus Information Sessions. The Full-Time M.B.A. Program offers off-campus information sessions around the world during the autumn and spring months. For complete schedule, please visit mba.berkeley.edu/events.html.

Applications. Candidates should apply online through the Haas School of Business web site at haas.berkeley.edu. The online application is typically available in mid-August. Please read the application information carefully.

 Evening & Weekend M.B.A. Program

The Haas School of Business also offers the Berkeley M.B.A. in a three-year program for working professionals who seek to add value to their academic backgrounds and professional experience while maintaining their current career momentum.

Students enter the program in the fall semester. They must have completed two prerequisite courses in mathematics and statistics or their equivalents before enrollment. Waiver examinations are also available. Admission criteria for the Evening & Weekend M.B.A. Program are similar to those for the full-time program.

Students in the Evening & Weekend M.B.A. Program must complete 42 units of coursework, including 17 units of required core courses, one unit for a Mid-Program Academic Retreat (MPAR), and 24 units of elective courses. Evening classes are held on the Berkeley campus Monday through Thursday from 6 p.m. to 9:30 p.m. Students attend classes two nights per week. Weekend classes are held Saturdays from 9 a.m. to 6 p.m. and alternate between Berkeley and South Bay campuses.

Applications. The Evening & Weekend M.B.A. Program accepts applications online at ewmba. berkeley.edu. For more information, please contact The Evening & Weekend M.B.A. Program, Haas School of Business, University of California, Berkeley, #1906, Berkeley, CA 94720-1906; (510) 642-0292; ewmba.berkeley.edu.

Master’s in Financial Engineering Program

The Master’s in Financial Engineering (M.F.E.) degree is a full-time, one-year graduate degree offered by the Haas School of Business. Students admitted to the M.F.E. program learn to use theoretical finance, mathematics, and computer programming skills to make pricing, hedging, trading, and portfolio management decisions.

Admission is extremely competitive, with 60 students admitted annually. The program starts and ends during the spring semester, and applications are accepted only for spring enrollment. In addition to meeting the UC Berkeley Graduate Division admissions requirements, applicants should have solid backgrounds in advanced mathematics and computer programming. Most students admitted to the program have academic and work experience in engineering, finance, statistics, physics, economics, and computer science.

The M.F.E. curriculum consists of 28 units of coursework taught over four terms of eight weeks each. Advanced courses cover topics in credit risk modeling, derivatives pricing, fixed income securities, bond portfolio management, equity and currency markets, corporate finance, asset management, arbitrage, hedging, futures and options pricing, trading, and dynamic investment strategies. An applied finance project of 1-3 units is also required for graduation. Credits and transfers from other universities and programs are not accepted.

Graduates of the M.F.E. Program find positions in commercial and investment banking, insurance companies, asset managers, corporate treasuries, bond portfolio management, equity and corporate finance, research, option-based securities valuation, special hedging, and real-option investment analysis.

For complete admissions, curriculum, and program information, please visit the Master’s in Financial Engineering Program’s web site at mfe.berkeley.edu.

The Ph.D. Program

The Ph.D. Program at the Haas School of Business is an advanced, integrative, and integrative course of study in the functioning of business and its interaction with the environment. It combines an in-depth examination of one or more of the traditional fields of study in business administration with a broader, integrative investigation of basic and applied theory in the social sciences and in quantitative methods. Fields of study include accounting, business economics, business policy, finance, financial engineering, operations management, organizational behavior and industrial relations, and real estate. Students in any primary specialization may also choose to concentrate in strategy by taking additional coursework.

The Ph.D. Program trains men and women for careers in the research, study, and teaching of the sophisticated technical and theoretical disciplines underlying business administration. These skills have become mandatory for jobs in academia and increasingly in business and government, as well as in consulting, research, and technical advisory firms. Although some Ph.D. graduates take positions as administrators in large companies, the Berkeley M.B.A. Program at the Haas School is a more appropriate course of study for those seeking a professional degree in preparation for high-level administrative positions.
Graduates of the Ph.D. Program enjoy excellent prospects for placement at the world’s top academic institutions. In the best tradition of advanced scholarship, the Haas Ph.D. Program offers a first-rate course of study in business functions and interactions with the social environment. The in-depth examination of one or more traditional fields of study equips candidates to become independent, integrated investigators of basic and applied theory in the social sciences and quantitative methods. The program includes intensive formal courses as well as individually developed reviews of special topics and research. Students work closely with the school’s internationally known faculty, both in the classroom and independently.

Instruction in the program is separated into three general phases. The first encompasses formal coursework and advanced subjects. The second phase, devoted to directed study, students work in close consultation with faculty members to prepare for research in their selected fields.

The final phase is individual research, when students undertake the work required for their dissertations. The second and third phases together usually require about two years for completion. In addition to coursework, students without previous experience in either research or teaching will normally be expected to serve as either teaching or research assistants for more semester.

Preparation for the Ph.D. Program. Admission to the Ph.D. Program is open to students with an accredited bachelor’s degree, or higher, from any field. No preference in admission is given to any previous field of study or to applicants who have had some graduate training. Applicants should possess strong skills in writing and oral communications and have a basic understanding of differential calculus.

Ph.D. applications will be evaluated on the basis of evidence of a high level of scholarly ability in both quantitative and qualitative skills, the motivation to complete a strenuous academic program, and a clear statement of career objectives that are consistent with the Ph.D. degree.

Applications for the Ph.D. Program can be found online via our web site at haas.berkeley.edu/Phd. You can also write to the Ph.D. Program Office, Haas School of Business, University of California, Berkeley; 545 Student Services Bldg, #1900, 2220 Piedmont Avenue, Berkeley, CA 94720-1900.

Undergraduate Business Administration

Lower Division Courses


(3) Hours of lecture and one hour of discussion per week. Formerly Business Administration 10. This course provides an introduction to the concepts and issues of the modern business enterprise. The course is taught in five modules, the order of which may vary from semester to semester. The first examines the role and governance of business enterprise in a market economy. The second concentrates on financial issues, while the third looks at the problems of managing people in organizations. The fourth examines product pricing, marketing, and distribution issues and the last concentrates on the international business environment.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Formerly Business Administration 24.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sophomores. Formerly Business Administration 39. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. Seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP)


Formerly Business Administration 119. A variety of topics in economic analysis and Area Studies 107. A deficient grade in Economics 100B, 101B, or International and Area Studies 107 may be repeated by taking 101B. Three hours of lecture and one hour of optional discussion per week. Prerequisites: Economics 1, Mathematics 1A or 16A, Statistics 21, or equivalents. Formerly Business Administration 111. Analysis of the operation of the market system with an emphasis on the problems of economic instability; analysis of public and business policies which are necessary as a result of business fluctuations. (F,SP) Staff

102A. Introduction to Financial Accounting. (3) Two hours of lecture and two hours of discussion per week. Formerly Business Administration 120. The identification, measurement, and reporting of financial effects of events on enterprises, with a particular emphasis on business organization. Preparation and interpretation of balance sheet statements, and statements of cash flows. (F,SP)

102B. Introduction to Managerial Accounting. (3) Two hours of lecture and two hours of discussion per week. Prerequisites: 102A. Formerly Business Administration 123. The uses of accounting systems and their outputs in the process of management of an enterprise. Classification of costs and revenue on several bases for various uses; budgeting and standard cost accounting; analyses of relevant costs and other factors in decision making. (F,SP)

103. Introduction to Finance. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 101A. Formerly Business Administration 130. Analysis and management of the flow of funds through an enterprise. Cash management, sources and uses of funds, capital budgeting, cost of capital, and financial structure. Introduction to capital markets. (F,SP)

105. Introduction to Organizational Behavior. (3) Students will receive course credit for 105 after taking Psychology 180 or Industrial Engineering and Operations Research 171. A deficient grade in Psychology 180 or Industrial Engineering and Operations Research 171 may be repeated by taking 105. Three hours of lecture per week. Formerly Business Administration 150. A general descriptive and analytical study of organizations from the behavioral science point of view. Problems of motivation, leadership, morale, social structure, groups, communications, hierarchy, and control in complex organizations are addressed. The interaction among technology, environment, and human behavior is examined. Alternate theoretical models are discussed. (F,SP)

106. Marketing. (3) Three hours of lecture per week. Formerly Business Administration 160. The evolution of markets and marketing; market structure; marketing cost and efficiency; public and private regulation; the development of marketing programs and trade decisions involving products, price, promotional distribution. (F,SP)

107. The Social, Political, and Ethical Environment of Business. (3) Three hours of lecture or two hours of lecture and one hour of discussion per week. Formerly Business Administration 170. Study and analysis of American business in a changing social and political environment. Interaction between business and other institutions. Role of business in the development of social values, goals, and national priorities. The expanding role of the corporation in dealing with social problems and issues. (F,SP)

113. Managerial Economics. (3) Hours of lecture per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 113. Analysis of the theory and practice of business behavior are considered. Business decisions are examined by pricing policies, internal transfer pricing, and various choices under uncertainty. (F,SP)

117. Special Topics in Economic Analysis and Policy. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 119. A variety of topics in economic analysis and
policy with emphasis on current problems and research. (F,SP)

118. International Trade. (3) Three hours of lecture per week. Prerequisites: 101A or equivalent. Formerly Business Administration 187. This course will develop models of and strategies for understanding the economic causes and effects of international trade, will investigate the effects of economic policies that inhibit trade, and will examine the political economy of trade. By integrating the theoretical and empirical perspectives covered in international economics, this course helps students learn how to explore the current political debates in the U.S. and elsewhere regarding the benefits and costs of increased international trade. (F,SP) Staff

119. Strategic Planning. (3) Three hours of lecture per week. Prerequisites: 101A-101B, 102A-102B, 103, 105, and senior standing. Formerly Business Administration 190. Class format consists of online instruction, student presentations, and case discussion. This course will cover the study of the concepts and techniques required to design and implement business strategies for private, public, and/or not-for-profit organizations. Students work in teams with a client organization and present their strategic recommendations. (F,SP) Staff

120A. Intermediate Financial Accounting. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 102A, Formerly Business Administration 120A. Communication of financial statements in the current environment of financial reporting. The measurement and reporting of the economic effect of events involving working capital and long-term plant assets, investment in securities, intangible assets. (F,SP)

120B. Advanced Financial Accounting. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 120A, Formerly Business Administration 122. Continuation of 120A. Sources of long term capital; funds statements, financial analysis, accounting for partnerships and unincorporated businesses, adjustments of accounting data using price indexes; accounting for the financial effects of pension plans; other advanced accounting problems. (F,SP)

121. Federal Income Tax Accounting. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 120A (120A recommended). Formerly Business Administration 128A. Determination of individual and corporation tax liability; influence of federal taxation on economic activity; tax considerations in business and investment decisions. (F,SP)

122. Financial Information Analysis. (3) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 120A. This course is designed to: (1) illustrate the use of financial statements in financial analyses; (2) teach students to identify the relevant financial data used in a variety of decision contexts, such as equity valuation, forecasting firm-level economic variables, distress prediction and credit analysis; (3) help students appreciate the factors that influence the output of computerized financial data systems, and (4) acquaint students with current literature on advanced accounting problems. (F,SP)

126. Auditing. (3) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 120B (120B recommended). Formerly Business Administration 126. Concepts and problems in the field of professional verification of financial and related information and issues surrounding ethical, legal and other professional issues, historical and contemporary standards, and current concerns. (F,SP)

127. Special Topics in Accounting. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: 120B-120B. Formerly Business Administration 129. A variety of topics in accounting with emphasis on current problems and research. (F,SP)

131. Corporate Finance and Financial Statement Analysis. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 103. Formerly Business Administration 134. This course will cover the principles and practice of business finance. It will focus on project evaluation, capital structure, and corporate governance. Firms’ policies toward debt, equity, and dividends are explored. The incentives and constraints facing managers and owners are also discussed. (F,SP)

132. Financial Institutions and Markets. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 101A-101B, and 103. Formerly Business Administration 132. Organization, behavior, and policies of financial institutions. Markets for financial assets and the structure of yields, influence of Federal Reserve System and monetary policy on financial assets and institutions. (F,SP)

133. Investments. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 103, Formerly Business Administration 133. Sources of and demand for investment capital, operations of security markets, determination of investment policy, and procedures for analysis of securities. (F,SP)

136F. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: 103. This course looks at the influence of decision heuristics and biases on investor welfare, financial markets, and corporate decisions. Topics include overconfidence, attribution theory, representative heuristic, availability heuristic, anchoring and adjustment, prospect theory, “Winner’s Curse,” speculative bubbles, IPOs, market efficiency, limits of arbitrage, relative mis-pricing of common stocks, the tendency to trade at a highly corrected fashion, investor welfare, and market anomalies. (F,SP) Staff

137. Special Topics in Finance. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: 103. Formerly Business Administration 137. A variety of topics in finance with emphasis on current problems and research. (F,SP)

140. Production and Operations Management. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 140 or equivalent. Formerly Business Administration 142. A survey of the concepts and methodologies to support control of production and operations systems. Topics include inventory control, material requirements planning for multistage production systems, aggregate planning, scheduling, automated inventory control. (F,SP) Staff

143. Game Theory and Business Decisions. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 1A or 16A, or consent of instructor. This course provides an introduction to game theory. Game theory is concerned with strategic interactions among players (multi-player games), and decision analysis is concerned with making choices under uncertainty (single-player games). Emphasis is placed on applications. (F,SP) Staff

144. Planning and Design of E-Business Systems. (3) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: Computer Science 3 or equivalent. Formerly Business Administration 144. This course is an introduction to management information systems (MIS) planning, design, and analysis in various organizations. Topics relate to successful and efficient implementation strategies in business. For example, projects encompassing all phases of systems analysis, feasibility study, systems design, development, prototyping, testing, documentation, and evaluation. Both technical and managerial issues will be emphasized. (F,SP) Staff

147. Special Topics in Manufacturing and Information Technology. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: Business Administration 147. A variety of topics in manufacturing and computerized information technology with emphasis on current problems and research. (F,SP)

149A. Information Technology Strategy. (3) Three hours of lecture per week. This course focuses on the use of IT by traditional firms and startups, rather than the details of the technology, with the goals of understanding how IT enables new strategies and how existing strategies adapt to IT innovations. Covers IT technologies used throughout the organization, including mobile communications, systems for online payment, business-to-consumer and business-to-business transactions, supply chain management, and staff management. (F,SP) Staff

151. Management of Human Resources. (3) Three hours of lecture per week. Prerequisites: 105. Formerly Business Administration 151. The designs of systems of rewards, assessment, and manpower training, personnel evaluation, and career ladders within an on-going organization. Role of the staff manager. Introduction of change. Implications of business research for management problems and policies. (F,SP)

152. Negotiation and Conflict Resolution. (3) Three hours of lecture per week. Prerequisites: 105. Formerly Business Administration 152. The purpose of this course is to understand the theory and processes of negotiation as practiced in a variety of settings. It is designed to be relevant to the broad spectrum of negotiation problems faced by managers and professionals. By focusing on the behavior of individuals, groups, and organizations in the context of competitive situations, the course will allow students the opportunity to develop negotiation skills experientially in useful analytical frameworks (e.g. simulations, cases). (F,SP) Staff

155. Leadership. (3) Three hours of lecture per week. The purpose of this course is for the students to develop an understanding of the theory and practice of leadership in various organizational settings. It is designed to allow students the opportunity to develop leadership skills through experiential exercises, behavioral and self-assessments, case studies, class discussions, and lectures. (F,SP) Staff

157. Special Topics in Organizational Behavior. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: 105. Formerly Business Administration 157. A variety of topics in organizational behavior and industrial relations with emphasis on current problems and research. (F,SP)

160. Consumer Behavior. (3) Three hours of lecture per week. Prerequisites: 106. Consumer behavior is the study of how consumers process information, form attitudes and judgments, and make decisions. Its study is critical to understand how consumers think and behave, which is critical for a company wishing to develop a customer focus. Given how people are, it is amazing how similarly their minds work. Consumer psychology is the systematic study of how consumers perceive information, how they encode it in memory, integrate it with other information, store it, retrieve it from memory, and utilize it to make decisions. It is one of the building blocks of the study of marketing and provides the student with a set of tools that can be applied to a wide range of problems. (F,SP)

161. Marketing Research: Tools and Techniques for Data Collection and Analysis. (3) Three hours of lecture per week. Prerequisites: 106. Formerly Business Administration 161. Marketing research objectives; qualitative research, surveys, experiments, sampling, data analysis, sampling, data analysis, decision making. The purpose of the course is to cover analysis of market information, development of product strategy, programming strategy, and implementation. (F,SP) Staff

163. Information and Technology-Based Marketing. (3) Three hours of lecture per week. Prerequisites: 106. Formerly Business Administration 163. This course is an introduction to product management in marketing contexts. It discusses the role of information technology in the process of marketing, and introduces students to the use of information technology in marketing. The course will cover analysis of market information, development of product strategy, programming strategy, and implementation. (F,SP) Staff

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information technology affects marketing strategy. (F,SP) Staff

165. Integrated Marketing Communication. (3) Three hours of lecture per week. Prerequisites: 106. Formerly Business Administration 165. Basic concepts and principles of organizing and managing advertising and other promotional means of attracting consumers to the corporation are emphasized. Consumer motivation; problems in utilizing advertising and measuring its effectiveness. (F,SP)

167. Special Topics in Marketing. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 167. A variety of topics in marketing with emphasis on current problems and research. (F,SP)

170. Business Ethics for the 21st Century. (2) Two hours of lecture per week. The purpose of this class is to enhance the ability of students to critically analyze, and respond to the complex social and ethical issues that challenge managers as well as individuals in their roles as citizens, consumers, investors, and employees. Instruction is based on lectures and case analysis, supplemented by topical and philosophical articles and essays. (F,SP) Staff

C172. Business in its Historical Environment. (3) Three hours of lecture per week. Formerly Business Administration C172. This course will examine selected aspects of the history of American business. Included will be decisions of the formation of the lactation, the development of modern managerial techniques, and the changing relationship of business, government, and labor. Also listed as American Studies C172. (F,SP) Rosen

175. Legal Aspects of Management. (3) Three hours of lecture per week. Formerly Business Administration 175. An analysis of the law and the legal process, emphasizing the nature and functions of law within the U.S. federal system, followed by a discussion of the legal problems pertaining to contracts and related topics, business association, and the impact of law on economic enterprise. (F,SP)

177. Special Topics in Business and Public Policy. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: 107. Formerly Business Administration 177. A variety of topics in business and public policy with emphasis on current problems and research. (F,SP)

178. Introduction to International Business. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 178. A survey involving environmental, economic, political, and social constraints on doing business abroad; effects of overseas business on domestic factors and foreign economic relations; foreign market analysis and operational strategy of a firm; management problems and development potential of international operations. (F,SP)

180. Introduction to Real Estate and Urban Land Economics. (3) Three hours of lecture per week. Prerequisites: Economics 1, Mathematics 164A or 1A, or equivalents. Formerly Business Administration 180. The nature of real property; market analysis; construction cycles; mortgage lending; equity investment; metropolitan growth; urban land use; real property valuation; public policies. (F,SP)

183. Introduction to Real Estate Finance. (3) Three hours of lecture per week. Prerequisites: 180. Formerly Business Administration 183. Real estate debt and equity financing; mortgage market structure; effects of credit on demand; equity investment criteria; public policies in real estate finance and urban development. (F,SP)

191C. Communication for Leaders. (2) One hour of lecture and two hours of discussion per week. This course is fundamental for the development of effective speaking skills in today's business environment. Each student will give speeches, coach, and debate each other, and take part in a variety of listening and other communication exercises. The course focuses on authenticity, persuasion, and advocacy. (F,SP) Staff

192P. Strategic Corporate Social Responsibility and Consulting Projects. (3) Three hours of lecture per week. Discuss the field of strategic CSR through a series of lectures, guest speakers, and projects. The course will examine best practices used by companies to socially responsible business practices. It will provide students with a flavor of the complex dilemmas one can face in business in trying to do both “good for society” and “well for shareholders.” It looks at CSR from a strategic, ethical, and sustainability perspective, and how this supports core business objectives, core competencies, and bottom-line profits. (F,SP) Staff

193C. Curricular Practical Training for Internship Students. Internship. Must be taken on a passed/not passed basis. Prerequisites: International Business Administration 179. Students enrolled in internships for non-immigrant international students participating in internships under the Curricular Practical Training program. Requires a paper exploring how the theoretical constructs learned in UGBA courses were applied during the internship. (F,SP)

195A. Entrepreneurship. (2) One hour of lecture per week. Formerly Business Administration 195. Principles, theories, and practical aspects of entrepreneurship. Building on functional subject knowledge, explores successes and failures of entrepreneurship. Includes starting new ventures, writing business plans, acquiring other businesses, and making existing enterprises profitable. (F,SP)

195P. Perspectives on Entrepreneurship. (3) Three hours of lecture per week. This course explores and examines key issues facing entrepreneurs and their businesses. It is intended to provide a broad spectrum of topics across many business disciplines including: accounting, finance, marketing, organizational behavior, production/quality, technology, etc. Students will acquire a keen understanding of both the theoretical and real world tools used today by entrepreneurs to achieve success in today’s competitive business environment. (F,SP) Staff

196. Special Topics in Business Administration. (1-4) One to four hours of lecture per week. Prerequisites: Upper division standing. Formerly Business Administration 196. Study in various fields of business administration. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

198. Directed Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Formerly Business Administration 198. Organized group study on topics selected by the student in consultation with an instructor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Formerly Business Administration 199. Enrollment restrictions apply. (F,SP)

Masters in Business Administration

Graduate Courses

200C. Leadership Communication. (1) One hour of lecture and two hours of discussion per week for five weeks. Leadership Communication is a workshop in the fundamentals of public speaking in today’s business environment. Students will engage in prepared and impromptu speech, and improve abilities to receive, evaluate, and apply feedback, and gain confidence as public speakers. (F,SP) Staff

200S. Data and Decisions. (2) Four hours of lecture and one and one-half hours of discussion per week for seven weeks. Formerly Business Administration 200S. The objective of this core course is to make students critical consumers of statistical analysis using available software packages. Key concepts include interpretation of regression analysis, model formulation and testing, and diagnostic checking. (F,SP) Staff

201A. Economics for Business Decision Making. (2) Four hours of lecture per week for seven weeks. Prerequisites: Knowledge of calculus and algebra assumed. Business success depends on the successful positioning of the firm and the management of its resources. The goal of this course is to think systematically about achieving competitive advantage through the management of the firm’s resources. We will analyze management decisions concerning real estate, market determination, product entry and exit. We will use readings and cases along with class discussion to develop practical insights into managing for competitive advantage. (F,SP) Staff

201B. Macroeconomics in the Global Economy. (2) Four hours of lecture per week for seven weeks. Prerequisites: 200S, 201A. This course develops and applies models of the world’s economies to explain long-run trends and short-run fluctuations in key macroeconomic variables, such as GDP, wage and price inflation, interest rates, exchange rates, unemployment, budget deficits, exchange rates, and trade balances. (F,SP) Staff

202. Financial Accounting. (2) Four hours of lecture and one and one-half hours of discussion per week for seven weeks. Formerly Business Administration 202. This course examines accounting models used for general-purpose financial reports. An objective of the course is to provide not only a working knowledge but also a clear understanding of the contents of published financial statements. (F,SP) Staff

203. Introduction to Finance. (2) Four hours of lecture per week for seven weeks. Prerequisites: 200S, 202. This is an introductory MBA course in investments. Students learn how to value assets given forecasts of future cash flows and about the risk characteristics of different asset classes. The first part of the course focuses on the time value of money. The second part of the course deals with measuring and pricing risk. Finally, the course touches on derivative, interest rate, and capital market efficiency. An effort will be made to tie the theoretical underpinnings of finance to real-world examples. (F,SP) Staff

204. Operations Management. (2) Four hours of lecture per week for seven weeks. Prerequisites: 200S, 203. This is an introductory MBA course in management. Students learn how to manage the processes that convert inputs (raw materials and services) into outputs (finished products and services) that meet customer requirements. (F,SP) Staff

205. Organizational Behavior. (2) Four hours of lecture per week for seven weeks. How can you motivate employees to go above and beyond the call of duty to get the job done? How can you be sure that your decisions are not biased? What inductive reasoning tactics can you use when you do not have the formal authority to tell someone what to do? This course adds to your understanding of the nature of complex organizations by covering topics such as individual level of analysis, group (organizational level of analysis), and also topics that integrate these two levels. (F,SP) Staff

206L. Leadership. (1) Three hours of lecture per week for seven weeks. The objective of this course is to help students develop an understanding of their own strengths and weaknesses as leaders and to nurture their confidence in envisioning themselves as, and aspire to be, leaders throughout their careers. The course will include two main components: (1) 360-degree assessment and an accompanying leadership self-assessment.
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208A. International Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 208A, 208B. This course introduces students to the advantages and disadvantages of international financial management, with an emphasis on the impact of international economic and political developments on the international financial markets. Special attention is paid to international financial arrangements relevant for managers of multinational corporations, including international financial institutions, foreign exchange and capital markets, the balance of payments, open economic macroeconomics, exchange rate determination; history of the international financial system; arbitrage and hedging; international aspects of financial decisions. (F,SP)

220. Financial Analysis. (3) Three hours of lecture per week. Prerequisites: Business Administration 220A or consent of instructor. Formerly Business Administration 220A. This course explores the practice of financial accounting, with an emphasis on the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

221. Corporate Financial Reporting. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Business Administration 221A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

222. Financial Management. (3) Three hours of lecture per week. Prerequisites: Business Administration 222A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

223. Financial Information Analysis. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Business Administration 223A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

224. Financial Accounting. (3) Three hours of lecture per week. Prerequisites: Business Administration 224A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

225. Financial Reporting. (3) Three hours of lecture per week. Prerequisites: Business Administration 225A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

226. Financial Institutions and Markets. (3) Three hours of lecture per week. Prerequisites: Business Administration 226A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

227. Financial Markets and Institutions. (3) Three hours of lecture per week. Prerequisites: Business Administration 227A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

228. Financial Institutions and Markets. (3) Three hours of lecture per week. Prerequisites: Business Administration 228A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

229. Financial Markets and Institutions. (3) Three hours of lecture per week. Prerequisites: Business Administration 229A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

230. Financial Institutions and Markets. (3) Three hours of lecture per week. Prerequisites: Business Administration 230A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

231. Financial Institutions and Markets. (3) Three hours of lecture per week. Prerequisites: Business Administration 231A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

232. Financial Institutions and Markets. (3) Three hours of lecture per week. Prerequisites: Business Administration 232A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

233. Financial Institutions and Markets. (3) Three hours of lecture per week. Prerequisites: Business Administration 233A or equivalent. This course emphasizes the use of accounting information in accounting and finance, the use of financial statements by decision makers external to the firm. Special attention will be paid to the valuation of financial statements. (F,SP)

234. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 234 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

235. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 235 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

236. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 236 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

237. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 237 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

238. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 238 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

239. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 239 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

240. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 240 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

241. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 241 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

242. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 242 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)

243. Behavioral Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 243 or consent of instructor. Survey of the day-to-day practices and techniques used in change of behavior. Topics include: learning, decision making, risk and uncertainty, the role of information, and the psychology of financial markets. (F,SP)
anchoring and adjustment, prospect theory, "Winners’ Curse," speculative bubbles, IPOS, market efficiency, limits of arbitrage, relative mis-pricing of common stocks to trade in a related market, investor, windfall, and market anomalies. (F,SP) Staff

237. Topics in Finance. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of finance. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

240. Risk Management via Optimization and Simulation. (1) Two hours of lecture per week for eight weeks. Prerequisites: 200S, 203, and 204, or consent of instructor. Survey of the formulation, solution, and interpretation of mathematical models to assist management of risk. Emphasis on applications from diverse businesses and industries, including inventory management, product distribution, portfolio optimization, portfolio insurance, and yield management. Two types of models are covered: optimization and simulation. Associated with each model type is a piece of software: Excel’s Solver for optimization and Excel add-in Crystal Ball for simulation. (F,SP)

243. Decisions, Games, and Strategies. (3) Three hours of lecture per week. Prerequisites: Business Administration 200, 204 or equivalent. Formerly Business Administration 243. The course considers two techniques for making a managerial decision: a model who has to make a choice now but will only know later whether the choice was good. Decision analysis helps if the outcome of the decision depends on "nature"; game models help if the outcome depends on human opponents (e.g., competitors). Focus is on both methods and a variety of applications. (SP)

246A. Service Strategy. (3) Three hours of lecture per week. Prerequisites: 204 or Evening and Weekend Master of Business Administration 204 or consent of instructor. This course is designed to teach general management principles involved in the planning, execution, and management of service businesses. It covers both strategic aspects, including the development of a strategic service vision, building employee loyalty, developing customer loyalty and satisfaction, improving productivity and service quality, service innovation, and the role of technology in services. Blend of case studies, group projects, class discussions, and selected readings. (F,SP) Staff

247A. Topics in Manufacturing and Operations. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of manufacturing and operations. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

248A. Supply Chain Management. (3) Three hours of lecture per week. Prerequisites: 204 or Evening & Weekend Master of Business Administration 204 or equivalent. Supply chain management concerns the flow of materials and information in multi-stage production and distribution networks. This course provides knowledge of organizational models for analytical decision support tools necessary to design, implement, and sustain successful supply chain strategies. Topics include demand and supply management, inventory management, supplier-buyer coordination, and decision-making support tools. This course also includes the role of information technology in supply chain management. (F,SP) Staff

249A. Information Technology Strategy. (3) Three hours of lecture per week. This course focuses on the use of information and technology to be more than the details of the technology, with the goals of understanding how IT enables new strategies and how existing strategies adapt to IT innovations. Covers IT technologies used throughout the organization, including mobile communications, systems for online payment, business-to-business transactions, customer relationship management, and supply chain management. (F,SP) Staff

251. Human Resources Management. (3) Three hours of lecture per week. Prerequisites: Business Administration 205 or consent of instructor. Formerly Business Administration 251. A study of the problems and techniques associated with managing the personnel of an organization. Includes issues of recruitment, selection, placement, training, and evaluation of people within organizations. The role of the staff manager with respect to the planning, design, and allocation of human resources is considered, with emphasis on the implications of research for management problems and policies. (F)

252. Negotiations and Conflict Resolution. (3) Three hours of lecture per week. Formerly Business Administration 252. A study of the negotiations process, including negotiations among buyers and sellers, managers and subordinates, company units, companies and organizational agencies, and management and labor. Both two-party and multi-party relations are covered, coursework includes reading, lectures, discussion of case material, and simulations of real negotiations. Emphasis on the role of third parties in resolving disputes. (F)

254. Power and Politics in Organizations. (3) Two hours of lecture per week. Prerequisites: Business Administration 205 or consent of instructor. Formerly Business Administration 257. This course addresses the art and science of influence in organizations. Organizations are fundamentally political entities, and power is required to get things done. After taking this course, students are able to: (1) diagnose the true distribution of power in organizations, (2) identify strategies for building sources of power, (3) develop techniques for influencing others, and (4) understand the role of power in building cooperation and leading change. (F,SP) Staff

256. Global Management Skills. (3) Three hours of lecture per week. Practical skills for global managers. Examines common issues and best practices for managing a global workforce and customer/partner relations. Generic cross-border management issues are discussed along with specific skill areas such as establishing credibility, building relationships, obtaining information, evaluating people, giving and receiving feedback, leading a virtual team, marketing and selling, transferring knowledge, and managing change. Skill areas are applied to key growth markets in Asia, EMEA, and the Americas, with numerous examples from leading global companies. (F,SP)

257. Special Topics in Organizational Behavior and Industrial Relations. (2-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Business Administration 206 or consent of instructor. Formerly Business Administration 259. Analysis of recent literature and developments related to such topics as organization development, environmental determinants of organization structure and decision-making behavior, management of professionals and management in temporary structures, cross-cultural studies of management organizations, and industrial relation systems and practices are examined. (F,SP)

260. Consumer Behavior. (3) Two hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 260. Examines concepts and theories from behavioral science useful for the prediction of market behavior and demand analysis. Emphasizes applications to the development of marketing policy planning and strategy and to various decision areas within marketing. Topics include the processes involved in creating and decision-making. (F,SP)

261. Marketing Research: Tools and Techniques for Data Collection and Analysis. (3) Three hours of lecture per week. Prerequisites: Business Administration 200 or comparable statistical course. Formerly Business Administration 261. This course develops the skills necessary to conduct effective market research study. Topics include research design, psychological measurement, survey methods, experimental, statistical analysis of marketing data, and effective reporting of technical material to management. Students select a client and prepare a market research study during the course. Course intended for students with substantive interests in marketing. (F,SP) Staff

262. Brand Management and Strategy. (3) Three hours of lecture per week. Prerequisites: Business Administration 202 and 209, or formerly Business Administration 262A. The focus of this course is on developing student skills to formulate and critique complete marketing programs including product, price, distribution and promotion policies. There is a heavy use of case analysis. Course is primarily designed for those who will take a limited number of advanced marketing courses and wish an integrated approach. (F,SP) Staff

263. Information and Technology-Based Marketing. (3) Three hours of lecture per week. Prerequisites: Business Administration 206. Formerly Business Administration 262B. Information technology has allowed firms to gather and process large quantities of information about consumers’ choices and reactions to marketing campaigns. However, few firms have the expertise to intelligently act on such information. This course addresses this shortcoming by teaching students how to use customer information to better market to consumers. In addition, the course addresses how information technology affects marketing strategy. (F,SP)

264. High Technology Marketing Management. (3) Three hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 264. This course covers high technology reference to that class of products and services which is subject to technological change at a pace significantly faster than most for goods in the economy. Under such circumstances, the marketing task faced by the high technology firm differs in some ways from the usual. The purpose of this course is to explore these differences. (F,SP)

265. Integrated Marketing Communications. (2) Two hours of lecture per week. Prerequisites: Business Administration 206 or equivalent; 260 is recommended. Formerly Business Administration 265. A specialized course in advertising, focusing on long-term relationships and decision-making. Topics include objective-setting, copy decisions, media decisions, budgeting, and examination of theories, models, and other recent methods appropriate to decision-making areas. Other topics include social/economic issues of advertising by nonprofit organizations. (SP)

266A. Sales Force Management. (1) Eight hours of lecture for two weeks. The sales force is a key (and not inexpensive) component of a firm’s overall marketing strategy. This class will provide a toolbox for handling a variety of sales force related issues—both strategic and tactical. The primary focus is on maximizing sales force productivity. Topics covered include the selling process, organizational structure, sales force sizing, territory design, compensation, evaluation, motivation, and deployment. (F,SP)

267. Topics in Marketing. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of marketing. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

268A. Global Marketing Strategy. (2) Two hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 267. This course will cover a wide variety of topics relating to the management of international marketing strategy, including frameworks for developing international marketing strategy; sources and sustainability of competitive advantage; international market structure analysis; market entry strategy; and integration of marketing strategy with other functional strategies. (F,SP)

268B. International Marketing. (3) Three hours of lecture per week. Provides frameworks, knowledge, and sensitivities to formulate and implement marketing
strategies for competing in the international arena. Regions and countries covered include the Americas, Europe, Japan, China, India, Russia, Africa, and Asia-Pacific. Issues covered include global versus local advertising, international pricing strategies, selecting and managing strategic international alliances and distribution channels, managing international brands and global product life cycle, international retailing, and international marketing organization and control. (F,SP) Staff

269. Pricing. (3) Three hours of lecture per week. This three-module course aims to equip students with proven concepts, techniques, and frameworks for assessing and formulating pricing strategies. The first module develops the economics and behavioral foundations of pricing. The second module discusses several innovative pricing concepts, including price cusomtization pricing, price matching, and product line pricing. The third module analyzes the strengths and weaknesses of several Internet-based, buyer-determined pricing models. (F,SP) Staff

270. Business and Public Policy. (2) Three hours of lecture for 10 weeks. Formerly Business Administration 267B. Introduction to political economy, the role of government in a mixed economy, business-government relations, the public policy process, regulation of business, corporate political activity and corporate governance. Formerly United States corporate governance systems, public policies and political system to those of Western Europe and Japan. (F,SP)

272. Corporate Environmental Strategy and Management. (2) Two hours of lecture per week. Overview of critical developments in corporate environmental strategy and management processes to think of strategic business opportunities present in the need to conserve resources and solve environmental problems. Topics include market and nonmarket drivers of corporate environmental strategy; management tools and system design technologies and concepts; and techniques for translating environmental factors into effective business strategies. (F,SP) Staff

275. Business Law: Managers and the Legal Environment. (3) Three hours of lecture per week. Pre-requisites: Completion of all core courses or consent of instructor. A manager must understand the legal environments which impact business and understand how to work effectively with lawyers. This course addresses the legal aspects of business relationships and business agreements. Topics covered include forms of business organization, duties of officers and directors, intellectual property, antitrust contracts, employment relationships, criminal law, and debtor-creditor relationships including bankruptcy. (F,SP) Staff

276. Media and Entertainment: Economics, Strategy, and Policy. (3) Three hours of lecture per week. An introduction to the economics of media and entertainment. Examines economic tools to understand some of the peculiarities of business that impact the nature of contracting, and the organization of firms and markets. Based on an understanding of the basic economic issues, the course will provide an overview of public policy issues and explore diverse growth, and real estate market behavior; property rights and valuation; residential and nonresidential markets; construction; debt and equity financing; public controls and policy. (F,SP)

282. Real Estate Development. (3) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Consent of instructor. Formerly Business Administration 282. The interaction of the private and public sectors in urban development; modeling the urban decision making process in the public and private areas; selected policy issues—housing, transportation, financing, local government, urban development and neighborhood change—are examined. (F)

283. Real Estate Finance and Securitization. (3) Three hours of lecture per week. Prerequisites: Business Administration 280 and background in the basics of finance, micro-economics, macro-economics, statistics, and quantitative analysis. Formerly Business Administration 283. Students will be introduced to the fundamentals of real estate financial analysis, including elements of mortgage financing and taxation. The course will apply the standard tools of financial analysis to specialized real estate financing circumstances and real estate evaluation. (SP)

284. Real Estate Investment Strategy. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Business Administration 284. Analysis of real estate investment and special studies; cases in residential and non-residential development and financing, real estate taxation, mortgage market developments, equity investment, valuation, and zoning. (SP)

285. Real Estate Investments. (3) Three hours of lecture per week. Course covers the key financial and economic concepts in real estate investment. It begins with property investment analysis. We then value development sites across the main sectors: residential, office, retail, hotel, and industrial. We also cover contracting with public and private sector partners and related steps. Finally, we study loan and equity structures (REITs), the secondary mortgage market, real estate investment portfolios. (F,SP) Staff

286. Housing and the Urban Economy. (3) Three hours of seminar per week. Prerequisites: Public Policy 210A-210B or equivalent. Formerly Business Administration C286. This course considers the economics of urban housing and land markets from the viewpoints of investors, developers, public and private managers, and consumers. It considers the interactions between private action and public regulation—including land use, zoning, and government subsidy programs. We will also analyze the links between primary and secondary mortgage markets, housing, credit, and liquidity. Finally, the links between international housing and related markets—as such as transportation and public finance—will be explored. (F) Quigley

287. Special Topics in Real Estate Economics and Finance. (1-3) Course may be repeated for credit. One to three hours of lecture per week. Prerequisites: Business Administration 280 and consent of instructor. Formerly Business Administration 287. Topics vary by semester at discretion of instructor and by student demand. Topical areas include: business and professional ethics and the role of the corporation in society; the role of the corporation in the mixed economy; managing the external affairs of the corporation, including community, government, media and stakeholder relations; technology policy, research and development; the economics of innovation; and the role of various stakeholders in the innovation process. (F,SP)

288. Real Estate Investment and Market Analysis. (3) Three hours of lecture and one hour of optional discussion per week. Prerequisites: Consent of instructor. Formerly Business Administration 288. Formerly Business Administration 287B. Introduction to the theory of land use, urban

290A. Introduction to Management of Technology. (3) Three hours of lecture per week. Formerly Business Administration 290AE. This course will familiarize students with the major topics encompassed by management of technology. It includes the full chain of innovative activities beginning with R&D and extending to manufacturing or where to make many of the existing firms fail to incorporate new technology? What are the success factors at each stage of innovation? The course introduces students to Haas and College of Engineering faculty working in the relevant areas; selected policy issues—housing, transportation, federal aid, local government, urban development and neighborhood change—are examined. (F,SP) Staff

290I. Managing Innovation and Change. (3) Three hours of lecture per week. Formerly Business Administration 290IIE. This course will familiarize students with the major topics encompassed by management of technology. It includes the full chain of innovative activities beginning with R&D and extending to manufacturing or where to make many of the existing firms fail to incorporate new technology? What are the success factors at each stage of innovation? The course introduces students to Haas and College of Engineering faculty working in the relevant areas; selected policy issues—housing, transportation, federal aid, local government, urban development and neighborhood change—are examined. (F,SP) Staff

290E. Marketing for High-Tech Entrepreneurs. (3) Three hours of lecture per week. Every successful entrepreneurial high tech venture has at its core individual(s) with mastery of two skill sets: (1) marketing and management expertise and (2) technological skill. The course is intended to provide the marketing skills needed for the management of an entrepreneurial high tech venture, regardless of whether the individual’s “home” skill set is technical or managerial. We examine in depth marketing approaches for entrepreneurial companies as a function of markets and technologies. Focus is placed on special requirements for creating and executing high tech marketing plans and programs in a setting of rapid technological change and limited resources. This course is particularly suited for those who anticipate founding or operating technology companies. (F,SP) Staff

290G. International Trade and Competition in High Technology. (3) Two hours of lecture per week. Formerly Business Administration 290G. This course considers the economics of global versus local manufacturing and marketing strategies for competing in the international arena. Topics covered include: business and professional ethics and the role of the corporation in society; the role of the corporation in the mixed economy; managing the external affairs of the corporation, including community, government, media and stakeholder relations; technology policy, research and development; the economics of innovation; and the role of various stakeholders in the innovation process. (F,SP)

290H. Management of Technology—Doing Business in China. (2) Two hours of lecture per week. Formerly Business Administration 290H. This course examines the business environment in China or to work with an MNC in China, develops their critical analysis and strategic decision tools and skills needed to compete in the world’s most dynamic emerging market. Students will be introduced to the diverse elements of the innovation process and the role of management expertise and (2) technological skill. The course is intended to provide the marketing skills needed for the management of an entrepreneurial high tech venture, regardless of whether the individual’s “home” skill set is technical or managerial. We examine in depth marketing approaches for entrepreneurial companies as a function of markets and technologies. Focus is placed on special requirements for creating and executing high tech marketing plans and programs in a setting of rapid technological change and limited resources. This course is particularly suited for those who anticipate founding or operating technology companies. (F,SP) Staff

290I. Managing Innovation and Change. (3) Three hours of lecture per week. Formerly Business Administration 290IIE. This course will familiarize students with the major topics encompassed by management of technology. It includes the full chain of innovative activities beginning with R&D and extending to manufacturing or where to make many of the existing firms fail to incorporate new technology? What are the success factors at each stage of innovation? The course introduces students to Haas and College of Engineering faculty working in the relevant areas; selected policy issues—housing, transportation, federal aid, local government, urban development and neighborhood change—are examined. (F,SP) Staff

290B. Biotechnology Industry Perspectives and Business Development. (2) Two hours of lecture per week. This course is designed to examine the issues that confront management of the development-stage biotech company, i.e., after its startup via an initial capital infusion, but before it might be deemed successful (e.g., by virtue of a product launch or otherwise having “adult” status). The intention is to study the biotech organization during the process of its growth and maturation from an “adolescence” through “adulthood.” (F,SP) Staff

290C. Strategic Computing and Communications Technology. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering, business administration, information management and systems, or consent of instructor. Formerly Business Administration C290D. Emphasis strongly impacting the success of new computing and communications products and services (based on underlying technologies such as electronics and software) in commercial applications. Technology trends and limits, economics, standardization, intellectual property, government policy, and industrial organization. Strategies to manage the design and marketing of successful products and services. (F,SP) Staff

290D. Design as Strategic Management Issue. (2) Two hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration C290K. This course is a study of product design, facilities design, and corporate identity design. It will cover how organizations' strategic product development and influence customer satisfaction, identify design issues, manufacturing procedures, and marketing tactics. (F,SP) Staff

290E. Marketing for High-Tech Entrepreneurs. (3) Three hours of lecture per week. Every successful entrepreneurial high tech venture has at its core individual(s) with mastery of two skill sets: (1) marketing and management expertise and (2) technological skill. The course is intended to provide the marketing skills needed for the management of an entrepreneurial high tech venture, regardless of whether the individual’s “home” skill set is technical or managerial. We examine in depth marketing approaches for entrepreneurial companies as a function of markets and technologies. Focus is placed on special requirements for creating and executing high tech marketing plans and programs in a setting of rapid technological change and limited resources. This course is particularly suited for those who anticipate founding or operating technology companies. (F,SP) Staff

290G. International Trade and Competition in High Technology. (3) Two hours of lecture per week. Formerly Business Administration 290G. This course considers the economics of global versus local manufacturing and marketing strategies for competing in the international arena. Topics covered include: business and professional ethics and the role of the corporation in society; the role of the corporation in the mixed economy; managing the external affairs of the corporation, including community, government, media and stakeholder relations; technology policy, research and development; the economics of innovation; and the role of various stakeholders in the innovation process. (F,SP)

*Professor of the Graduate School
*Recipient of Distinguished Teaching Award
examines challenges of managing innovation glob-ally. (F,SP)

290M. High-Tech Product Design and Rapid Manufac-turing. (3) Three hours of lecture per week. Pre-requisites: Graduate standing. Formerly Business Administration 290A. This course will study CAD/CAM, rapid prototyping, metal products, semiconductors, electronic packaging, biotechnology, and robotics technologies and includes a hands-on laboratory using CAD and manufacturing techniques. Economic and social drivers, organizational structure, product life-cycle, and future trends are also covered. (F,SP) Staff

290N. Managing the New Product Development Process. (3) Three hours of lecture per week. Pre-requisites: Graduate standing. Formerly Business Administration 290A. An operationally focused course that aims to develop the interdisciplinary skills required for successful product development. Through read-ings, case studies, guest speakers, applied projects, and student research, students discover the basic tools, methods, and organizational structures used in new product development management. Course covers process phases: idea generation, product def-inition, product development, testing and refinement, manufacturing ramp-up, and product launch. (F,SP)

290P. Project Management Case Studies. (2) Two hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration 290L. This course provides students with a case study approach to learning project management through interviews with real practitioners. Students will discuss case studies and review real man-agement problems of major corporations. They will create strategic plans to alleviate problems and learn how to manage a large project to a successful com-pletion. (F,SP)

290T. Topics in Management of Technology. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of management of technology. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

290V. Innovation in Telecommunications and New Media. (3) Three hours of lecture per week. Prereq-uisites: Business Administration 204. Formerly 244D. This course is intended for students who wish to gain better understanding of one of the most important issues facing management today—designing, imple-menting, and managing telecommunication and dis-tributed computer systems. The following topics are covered: a survey of networking technologies; the selection, design, and management of telecommunication system; strategies for distributed data pro-cessing; human-resource and management of personal computers in organizations. (F,SP)

290W. Wireless Communications. (3) Three hours of lecture per week. This course focuses on current issues facing the global wireless communications industry. Particular emphasis is placed on analyzing the industry structure, value chain, and business models of various players and investigating opportuni-ties for startups and new entrants. Explores the role of regulation, technological innovation, and competitiveness. Course is team-taught. Draws on various disciplines, such as public policy, law, eco-nomics, finance, marketing, engineering, and physics. (F,SP) Staff

291A. Speaking as a Leader. (2) One hour of lecture and two hours of lecture per week. Formerly Business Administration 291A. Leaders must be capable of inspiring commitment in their constituencies rather than merely demanding compliance. This course will teach future leaders the skills and tools to approp-riately influence culture. The instructors solicit stu-dents personal convictions, then provides a structure and method for effectively communicating these beliefs. Participants will develop confidence in both the context of their message and their ability to convey it. (F,SP)

291D. Data Visualization for Discovery and Com-munication. (1) Eight hours of lecture for two weeks. This course exposes the problems of poor data pre-sentation and introduces design practices necessary to communicate quantitative business information clearly, efficiently, and powerfully. This course identifies what to look for in the data and describes the types of graphs and techniques that are effective for spotting what is meaningful and making sense of it. (F,SP)

291T. Topics in Managerial Communications. (1-3) Course may be repeated for credit. One to three hours of lecture per week. Formerly Business Administra-tion 291T. This course will provide the student with a broad and specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diver-sity management, and creativity management. Topics will vary from semester to semester. (F,SP)

292A. Strategic Management of Nonprofit Orga-nizations. (2,3) Two to three hours of lecture per week. This course prepares students conceptually and practically to create, lead, and manage nonprofit organizations. Focusses on the centrality of the mis-sion, governing board leadership, application of strat-egy and strategic planning, and strategic management of issues unique to or characteristic of the sector: perfor-mance measurement, program development, finan-cial management, resource development, community relations and marketing, human resource manage-ment, advocacy, and management. (F,SP) Staff

292B. Nonprofit Boards. (1) Eight hours of lecture for two weeks. Formerly 292BP. The course requires only two weeks of the course to attend. The course will examine board leadership, governance, and operation. The focus will be on the nonprofit boards of major organizations. Students will learn why nonprofit boards exist, how they are structured, how they differ from corporate boards, what their legal responsibilities are, how boards and chief executives relate to each other, and how boards contribute to the effectiveness of nonprofit organiza-tions. (F,SP)

292C. Strategic CSR and Consulting Projects. (3) Three hours of lecture per week. Formerly 292CP. Dis-cusses the field strategic of CSR through a series of lectures, guest speakers, and projects. It will examine best practices used by companies to engage in socially responsible practices. It will provide students with a flavor of the complex dilemmas one can face in busi-nesses in trying to do both good for society and well for shareholders. It looks at CSR from a corporate strat-egy perspective and how it supports core business objectives, core competencies, and bottom-line prof-its. (F,SP) Staff

292F. Financial Management of Nonprofit Organiza-tions. (3) Three hours of lecture per week. Formerly Business Administration 292F. The course focuses on the management techniques and methods that the professional financial manager must have to effectively analyze and manage the financial resources of the corporation. Topics include budgeting, financial reporting, capital budgeting, project valuation, and equity valuation. (F,SP)

292H. Social Entrepreneurship. (1) Three hours of lecture per week. Formerly Business Administration 292H. The course will: (1) introduce emerging global social enterprises through what they do, how they are changing the emerging capital market for social ventures and the possible trade-offs in social and financial return expec-tations from different capital sources, from venture capital to social impact investment; (2) introduce management decisions inherent in growing social enterprises; and (3) help student entrepreneurial team learn to effectively analyze and make the potential creative entrepre neurial ventures. The social entrepreneurs will be selected based on a competitive review process that includes the individual’s “home” skill set, whether technical or managerial. We examine in depth the approaches most likely to succeed for entrepreneurial companies as a function of markets and technologies. Empha-
the life sciences and is designed for both entrepreneurs and students who may some day find work or in an emerging life science-based company. Students are exposed to the topics most critical to successfully founding, financing, and operating a life science company and are expected to perform many of the tasks that founders and early venture managers normally undertake. (F,SP) Staff

295T. Special Topics in Entrepreneurship. (1-3) One to three hours of lecture per week. Sections 1-10 to be graded on a satisfactory/unsatisfactory basis. Prerequisites: All core courses or equivalents. Formerly Business Administration 295C. Courses of this kind will cover issues that either appeal to a specialized interest by type of firm being started (e.g., new ventures in computer software) or in the aspect of the entrepreneurial process being considered (e.g., risk management). Typically will be designed to take advantage of the access offered by the University and the locale to knowledgeable and experienced members of the business community. (F,SP)

296. Special Topics in Business Administration. (F-SP) Course may be repeated for credit. One-half to two hours of lecture per week. Sections 7A and 10A (fall) and 7B and 10B (spring) will be offered in Progress. Credit and grade to be awarded on completion of sequence. Course may be taken for credit. The course is intended to broaden the knowledge base of its students to create a great learning environment. (F,SP) Staff

297A. Introduction to the Health Care System. (3) Three hours of lecture per week. This course gives a systematic overview of the U.S. health care system by providing students with an understanding of its structure, financing, and policy issues. It systematically addresses system-wide, organizational, and firm-level issues that drive reform efforts. (F,SP) Staff

297B. Health Care Finance. (2) Two hours of lecture per week. This course is designed to give students a broad understanding of the financial challenges faced by health care organizations and the tools and skills most critical to successfully manage the finances of a health care provider. The course will cover the financial management of hospitals, managed care organizations, and physician groups and insurance firms. Cases are used to illustrate the application of theories of this course and of the first-year MBA courses. This course is designed to provide students with an education in to the complexities and unique problems of entrepreneurship in an emerging life science-based company. Students are exposed to the topics most critical to successfully founding, financing, and operating a life science company and are expected to perform many of the tasks that founders and early venture managers normally undertake. (F,SP) Staff

298. Seminar in International Business. (2,3) Four to five and one-half hours of fieldwork per week for one period. This course is designed to familiarize students with the tools and skills most critical to successfully managing a global new product development strategy. Students will participate in a team project that provides a structured approach to matching course requirements at the Haas School with those that have the possibility of creating a national or international impact or both. It will take two perspectives—the entrepreneur’s and the investor’s—and it will focus on the venture capital process, including how they are formed and managed, accessing the public markets, mergers, and strategic alliances. (SP) Staff

299. Strategy. (2) Four hours of lecture per week for seven weeks. Prerequisites: 2014. Course covers current topics in strategy, including the choice of products and services to offer, competitive positioning in product markets; decisions about scope and diversity; and the design of organizational architecture, management control systems, and performance indicators; and analyzes the larger management and policy issues that drive reform efforts. (F,SP) Staff

299B. Global Strategy and Multinational Enterprise. (2,3) Two to three hours of lecture per week. Prerequisites: All core courses. Formerly Business Administration 299B. This course explores the issues of conducting business in an international context, including an analysis of project management, information resources, and cultural differences. The three-week project, typically in a developing economy, provides a real-life application of theories learned in the first-year MBA courses. The fall segment highlights the presentations of each returning team on their project findings and experiences. (SP)

299X. MBA Exchange Program. (1-15) Course may be repeated for credit. One to 15 hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Successful completion of all core courses; good academic standing. Students who participate in any MBA international exchange programs receive credit (usually 12 units) at Haas for the set of courses that they successfully complete at their host school. The courses taken by the students that take the subject matter must be reviewed by the MBA Program office to ensure that they match course requirements at the Haas School. (F,SP) Staff

299G. Global Strategy in the Nonprofit Sector. (2,3) Two to three hours of lecture per week. Prerequisites: 299A. This course is designed to familiarize students with the tools and skills most critical to successfully managing a global new product development strategy when industrial structures and government policy differs. Efficacy of joint ventures and strategic alliances. Implications for industrial policy and global governance. (F,SP)

299H. Competitive and Corporate Strategy. (2,3) Three hours of lecture per week. Prerequisites: All core courses. Formerly Business Administration 299H. Examine optimal production and pricing policies for firms in competitive environments. Optimal strategies through time; strategies in the presence of imperfect information. How differing market structures and government policies (including taxatior) affect output and to the challenges. Social welfare implications of decisions by competitive firms also explored. (F,SP)

299I. Strategic Management and the Organization of Health Services. (2,3) Three hours of lecture per week. Three hours of lecture for ten weeks. Prerequisites: Business Administration 299I or Public Health 223A or 223A/224A, or consent of instructor. Formerly Business Administration 299G. This is a course in strategic management of health services organizations. It systematically addresses system-wide, organization, and group-level issues in strategy formulation, content, implementation, and performance. It considers internal and external factors that affect organizational performance. Emphasizes the development and implementation of strategies to meet stakeholders’ demands, and total quality management approaches. This course covers a wide variety of health care organizations including providers, plans, systems, suppliers, pharmaceuti-
300. Teaching Business. (5) Six hours of lecture per week for one month. Must be taken on a satisfactory/unsatisfactory basis. This course will cover the important skills and resources necessary to be an effective graduate student instructor (GSI) in the Haas School of Business. GSIs are an integral part of instruction at Haas, supporting faculty teaching through administrative and pedagogical support. This course is designed to prepare MBA students for their first GSI positions, ensuring that they are ready for the many potential challenges that might arise in the ensuing semester. Students will learn effective teaching techniques from faculty and veteran GSIs, as well as resources available to them both through Haas and the Berkeley campus. This course will also teach MBA students the common pitfalls of any class—both in pedagogical style and in student interaction. 

304. Qualitative Analysis for Business Decisions. (F,SP) Six hours of lecture per week for five weeks. Prerequisites: Business Administration E200A or equivalent. Formerly Business Administration 299A. Course examines current models of strategy, structure, process interaction, and their historical foundations. Students will use current theory to traditional cases and to current examples of organization adaptation in the business press. In addition, the course will examine in detail emerging patterns of strategy, structure, and process—the beginnings of what appear to be new organizational forms. Finally, comparisons will be drawn between U.S. and foreign patterns of adaptation. (F,SP) Staff

200C. Leadership Communications. (1) Four hours of lecture per week for five weeks or three and one-half hours of lecture per week for nine weeks. Leadership communication is a workshop in the fundamentals of public speaking in today’s business environment. Through prepared and impromptu speeches, aimed at persuading, peer coaching, and feedback, students will sharpen their authentic and persuasive communication skills, develop critical listening skills, improve abilities to give, receive, and apply feedback, and gain confidence as public speakers. 

205. Organizational Behavior. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Organizational Behavior E205. The course will cover the following topics: (1) recognition and assessment of archetypal strategic situations; (2) recognize and assess archetypal strategic situations in business; (3) live cases run by leaders in organizations; (4) recognize and assess archetypal strategic situations in complicated negotiation settings; and (3) feel comfortable in the process of negotiating. (F,SP) Staff

201A. Economics for Business Decision Making. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Prerequisite: E204. Formerly Business Administration E201A. This course uses the tools and concepts of microeconomics to analyze decision problems within a business firm. Special emphasis is placed on those skills in pricing, cost and revenue analysis, and demand and supply which are common in emerging markets, and learn to minimize the risks in doing business in emerging markets. This course is a combination of lectures, class participation, and cases. (F,SP) Staff

201B. Macroeconomics in the Global Economy. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Prerequisite: E204. Formerly Business Administration E201B. This course builds on the foundations developed in E202A to develop theories of fiscal policy, monetary policy, and other macro-economic policies. Both the issues and the evidence in connection with these policies will be examined. Other topics covered in the course range from the specifics of the U.S. balance of payments situation to the broader problems associated with economic growth and decay in the world. 

202. Financial Reporting. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Formerly Business Administration E202A. Published financial reports provide the most important single set of data on modern organizations. This course is designed to provide a working knowledge of accounting measurement systems which is essential for a clear understanding of published financial reports. 

203. Introduction to Finance. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Formerly Business Administration E202B. An introduction to the application of quantitative methods to management decision problems. Topics include linear programming, probability theory, decision analysis, regression and correlation, and time series analysis. 

204. Organizational Behavior. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Prerequisites: Admission to the program. Formerly Business Administration E222. A survey of knowledge about leadership will be covered: (1) 360-degree assessment and an accompanying leadership self-assessment; (2) five cases run by leaders in organizations; (3) knowledge about leadership; (4) experiential exercises. (F,SP) Staff

206. Marketing Organization and Management. (2) Four hours of lecture per week for seven weeks or three and one-half hours of lecture per week for nine weeks. Prerequisites: Business Administration E200. Formerly Business Administration E206. Topics include an overview of the marketing system and the marketing concept, buyer behavior, market research, segmentation and marketing decision making, marketing mix structures, and marketing performance in the economy and society. (F,SP) Staff

207. Ethics and Responsibility in Business. (1) Four hours of lecture per week for four weeks or three and one-half hours of lecture per week for five weeks. Prerequisites: Admission to the program. Formerly Business Administration E207. A study of basic ideas, concepts, attitudes, rules, and institutions in our society that characterize the legal, political, and social framework within which the system operates. (F,SP) Staff

210. Strategy, Structure, and Incentives. (3) Three hours of lecture per week. Prerequisites: 201A or consent of instructor. This course uses insights from economics to develop strategy, tactics, and incentives to achieve the firm’s goals. It develops a framework for analyzing organizational architecture, focusing on the allocation of decision rights, the measurement of performance, and the design of incentives. Includes managing the vertical chain of upstream suppliers and downstream distributors, design and operation of incentive and performance management systems, techniques for dealing with informational asymmetries. (F,SP) Staff

211. Game Theory. (3) Three hours of lecture per week. A survey of the main ideas and techniques of game theoretic analysis related to business processes and applications. Emphasizes the identification and analysis of archetypal strategic situations in bargaining. Goals of the course are to: (1) provide a foundation for applying game-theoretic analysis, both formally and intuitively, to negotiation and bargaining; (2) recognize and assess archetypal strategic situations in complicated negotiation settings; and (3) feel comfortable with the process of negotiation. (F,SP) Staff

212. Energy and Environmental Markets. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E201A or equivalent. Formerly Business Administration E212. Business strategy and public issues in energy and environmental markets. Topics include development and effect of organized spot, futures, and derivative energy markets; political economy of regulation and deregulation; climate change and environmental policies related to energy use; carbon pricing; competition policy; pricing of exhaustible resources; competitiveness of alternative energy sources; and transportation and storage of energy commodities. 

215. Business Strategies for Emerging Markets: Management, Investment, and Opportunities. (3) Three hours of lecture per week. Prerequisites: Business Administration E202A. Students will study the institutions of emerging markets that are relevant for managers, analyze opportunities presented by emerging markets, analyze the additional ethical challenges and issues of social responsibility common in emerging markets, and learn to minimize the risks in doing business in emerging markets. This course is a combination of lectures, class participation, and cases. (F,SP) Staff

217. Topics in Economic Analysis and Policy. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of economic analysis and policy. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP) Staff

218. International Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 201B. Formerly Business Administration E285. This course introduces students to the institutions and operations of the international financial environment; special attention is paid to international financial arrangements relevant for managers of multinational corporations. Topics include: foreign exchange and capital markets; the effects of exchange rate uncertainty on international trade and investment; international trade and finance; international capital flows; international finance; investment analysis; and the role of international and domestic financial institutions. 

222. Financial Information Analysis. (3) Three hours of lecture per week. Formerly Business Administration E222. Issues of accounting information evaluation with special emphasis on the use of financial statements by decision makers outside the firm. The implementation of and recent research on accounting for external reporting issues will be explored. Emphasis will be placed on models that describe user’s decision context. (SP)


224A. Managerial Accounting. (2) Six hours of evening lecture per week for five weeks. Prerequisites: E204. Formerly Business Administration E202B. Management is dependent on an information system which provides dependable, timely, and relevant infor-
237. Topics in Finance. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of finance. Topics will vary from year to year and will be announced at the beginning of each semester. (F.S.P) Staff

238. Risk Management via Optimization and Simulation. (1) Seven hours of lecture for two weeks. Prerequisites: 203 and 204, or consent of instructor. This course surveys the formulation and solution of mathematical models to assist management of risk. Emphasis on applications from diverse businesses and industries, including inventory management, product distribution, portfolio optimization, portfolio insurance, and vendor managed inventory. Two types of models are covered: optimization and simulation. Associated with each model type is a piece of software: Excel’s Solver for optimization and Excel add-in Crystal Ball for simulation. (F,SP) Staff

246A. Service Strategy. (3) Three hours of lecture per week. Prerequisites: 204 or Master of Business Administration 204 or consent of instructor. This course is designed to teach general management principles involved in the planning, execution, and management of service businesses. It covers both strategic and tactical aspects, including the development of a strategic service vision, building employee loyalty, developing customer loyalty and satisfaction, improving productivity and service quality, service innovation, and the role of technology in services. Blend of case studies, group projects, class discussions, and selected readings. (F.S.P) Staff

247A. Topics in Manufacturing and Operations. (3-3) Three hours of lecture per week. Advanced study in the field of manufacturing and operations. Topics will vary from year to year and will be announced at the beginning of each semester. (F.S.P) Staff

248A. Supply Chain Management. (3) Three hours of lecture per week. Prerequisites: 204 or Master of Business Administration 204 or equivalent. Supply chain management concerns the flow of materials and information in multistage production and distribution. Course includes the formulation, solution, and interpretation of mathematical models to assist management of risk. Emphasis on applications from diverse businesses and industries, including inventory management, product distribution, portfolio optimization, portfolio insurance, and vendor managed inventory. Two types of models are covered: optimization and simulation. Associated with each model type is a piece of software: Excel’s Solver for optimization and Excel add-in Crystal Ball for simulation. (F,SP) Staff

252. Negotiations and Conflict Resolution. (3) Three hours of lecture per week. Prerequisites: Business Administration E205. Formerly Business Administration E252. A study of the negotiations process, including negotiations among buyers and sellers, management and subordinate employees, companies and organizational agencies, and management and labor. Both two-party and multi-party relations are covered. Coursework includes reading, lectures, discussion of case material, and role-playing simulations. Emphasis on the role of third parties in resolving disputes. (F.S.P) Staff

254. Power and Politics in Organizations. (2) Two hours of lecture per week. This course addresses how organizations distribute various resources and hierarchies can create hierarchies. Resources are concentrated and where they are scarce. Topics include communication skills, control issues, rewards and penalties, and politics within the organization. (F.S.P) Staff

256. Global Management Skills. (3) Three hours of lecture per week. Practical skills for global managers. Examines common issues and best practices for managing a global workforce and customer/partner relations. Generic cross-border management issues are discussed along with issues of a regional nature such as establishing credibility, building relationships, obtaining information, evaluating people, giving and receiving feedback, leading a virtual team, marketing and selling, and understanding economic change. Skill areas are applied and adapted to key growth markets in Asia, EMEA, and the Americas, with numerous examples from leading global companies. (F.S.P) Staff

257. Topics in Organizational Behavior and Industrial Relations. (3-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of organizational behavior and industrial relations. Topics will vary from year to year and will be announced at the beginning of each semester. (F.S.P) Staff

258A. International Business: Designing Global Organizations. (3) Three hours of lecture per week. Prerequisites: 205. This course is about flexible organizational designs and adaptive leadership strategies for extending the reach of global markets. It presents to students working in high tech, life sciences and biotechnology, telecommunications, management consulting, and financial services. Topics include new trends in global organizational and strategic leadership, leading geo-dispersed teams of knowledge workers, managing offshore partnerships, integrating acquisitions, and executing change with multicultural knowledge workers. (F.S.P) Staff

260. Consumer Behavior. (3) Three hours of lecture per week. Prerequisites: Business Administration E206 or consent of instructor. Formerly Business Administration E260. This course examines concepts and theories from behavioral science useful for the understanding and prediction of marketplace behavior and demand analysis. Emphasizes applications to marketing. Includes marketing policy planning and strategy to various decision areas within marketing. (F.S.P) Staff

261. Marketing Research: Tools and Techniques for Data Collection and Analysis. (3) Three hours of lecture per week. Formerly Business Administration E261. An introduction to IT integrated marketing research. The course will cover the nature and scope of data collection, the role of salespeople and survey research, and the topics of qualitative research, surveys, experiments, sampling, data analysis, and information system management. (F.S.P) Staff

262. Brand Management and Strategy. (3) Three hours of lecture per week. Prerequisites: Business
264. High Technology Marketing Management. (3) Three hours of lecture per week. Prerequisites: Business Administration E206 or equivalent. Formerly Business Administration E264. High technology refers to that class of products and services which is subject to technological change at a pace significantly faster than that class of products and services which is subject to technological change at a pace significantly slower than the speed of the change in the technology of the product itself. Under such circumstances, the marketing task faced by the high technology firm differs in some ways from the traditional marketing task.

266. Channels of Distribution. (3) Three hours of lecture per week. Prerequisites: Business Administration E206 or equivalent. Formerly Business Administration E266A. Channels of distribution allow firms to gather and process large quantities of information about consumers’ choices and reactions to marketing campaigns. However, few firms have the expertise to intelligently act on such information. This course addresses this shortcoming by teaching students how to use customer information to better market to consumers. In addition, the course addresses how information technology affects marketing strategy. (F,SP) Staff

267. Topics in Marketing. (.5-3) One to three hours of lecture per week. Prerequisites: Business Administration E207 or equivalent, or consent of instructor. Formerly Business Administration E270. Topics vary by semester at discretion of instructor and by student demand. This course provides advanced study in the field of marketing management of technology. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP) Staff

280. Real Estate Investment and Market Analysis. (3) Three hours of lecture per week. Formerly Business Administration E280. Intensive review of literature in the field of real estate development and management. Students will study the fundamentals of real estate investment analysis. The course will introduce students to the concept of real estate development and management and the real estate market. (F,SP) Staff

281. Strategic Real Estate Finance and Securitization. (3) Three hours of lecture per week. Prerequisites: Business Administration E280; and background in the theory of land utilization, urban growth and real estate market behavior; property rights and valuation; residential and non-residential development; construction, debt and equity financing; public controls and policies.

283. Real Estate Finance and Securitization. (3) Three hours of lecture per week. Prerequisites: Business Administration E280; and background in the theory of land utilization, urban growth and real estate market behavior; property rights and valuation; residential and non-residential development; construction, debt and equity financing; public controls and policies.

287. Special Topics in Real Estate Economics and Finance. (1-3) Course may be repeated for credit. One to three hours of lecture per week. Prerequisites: Business Administration E281. Formerly Business Administration E284. Topics may vary from semester to semester. (F,SP) Staff

290. Project Management Case Studies. (1) One hour of lecture per week. Formerly Business Administration E290L. Course presents case studies of projects that required intervention to avert catastrophic failure. Students will design case studies and review real management problems of major corporations. They will identify strategic plans to alleviate problems and learn how to manage a large project to a successful completion. (F,SP) Staff

290T. Topics in Management of Technology. (5-3) Course may be repeated for credit. One to three hours of lecture per week. Advanced study in the field of management of technology. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP) Staff

291C. Active Communicating. (1) Eight hours of lecture per week. Formerly Business Administration E291D. This course exposes the problems of poor data presentation and introduces design principles necessary to communicate quantitative business information clearly, efficiently and powerfully. Students will learn how to work effectively with lawyers. This course provides an overview of the types of graphs and visual analysis techniques most effective for spotting what is meaningful and making sense of it. (F,SP) Staff

291D. Data Visualization for Discovery and Communication. (1) Eight hours of lecture per week. Formerly Business Administration E291C. This course exposes the problems of poor data presentation and introduces design principles necessary to communicate quantitative business information clearly, efficiently and powerfully. Students will learn how to work effectively with lawyers. This course provides an overview of the types of graphs and visual analysis techniques most effective for spotting what is meaningful and making sense of it. (F,SP) Staff

292A. Strategic Management of Nonprofit Organizations. (1) Three hours of lecture per week. Formerly Business Administration E292A. This course addresses the centrality of the mission, governance, board leadership, advocacy, strategy, strategic planning, and strategic management of issues unique to or characteristic of the sector: performance measurement, program development, financial management, resource development, community relations and marketing, human resource management, and advocacy. (F,SP) Staff

292B. Nonprofit Boards. (1) Eight hours of lecture per week. Formerly Business Administration E292B. Formerly Business Administration E292T. Course is designed to introduce students to the innovation process and its management. It provides an overview of technological change and its strategic implications. Students will also be introduced to the role of corporate social responsibility in the mixed economy. (F,SP) Staff

291T. Topics in Managerial Communications. (1-3) Course may be repeated for credit. One to three hours of lecture per week. Formerly Business Administration E291T. Course provides an overview of the types of graphs and visual analysis techniques most effective for spotting what is meaningful and making sense of it. (F,SP) Staff

290A. Managing Innovation and Change. (3) Three hours of lecture per week. Formerly Business Administration E290A. This course introduces students to the innovation process and its management. It provides an overview of technological change and its strategic implications. Students will also be introduced to the role of corporate social responsibility in the mixed economy. (F,SP) Staff
of all core courses; good academic standing. Students who participate in one of the Haas School’s domestic or international exchange programs receive credit (usually 12 units) at Haas for the set of courses that they successfully complete at their host school. The courses that the students take at the host school are subject to review by the EWMBA Program office to ensure that they match course requirements at the Haas School. (F.SP) Staff

298B. Global Strategy and Multinational Enterprise. (2.3) Two to three hours of lecture per week. Prerequisites: All core courses. Formerly Business Administration E266. Identifies the management challenges facing international firms. Attention to business strategies, organizational structures, and the role of governments in the global environment. Special attention to the challenges of developing and implementing strategic plans when international structures and government policies differ. Efficacy of joint ventures and strategic alliances. Implications for international policy and global governance. (F.SP) Staff

299E. Competitive Strategy. (2.3) Three hours of lecture per week. Prerequisites: Business Administration E201A, E201B, E204. Formerly Business Administration E210. Examines optimal production and pricing policies for firms in competitive environments. Strategic and methodological issues in the presence of imperfect information. How differing market structures and government policies (including taxation) affect output and pricing decisions. Social welfare implications of decisions by competitive firms also explored. (F.SP) Staff

299M. Marketing Strategy. (3) Three hours of lecture per week. Prerequisites: Business Administration E202B, E203, E205, E206. Formerly Business Administration E267. Strategic planning and marketing methods with emphasis on the customer, competitor, industry and environmental analysis and its application to strategy development and choice. (F.SP) Staff

299O. Organizing for Strategic Advantage. (3) Three hours of lecture per week. Prerequisites: Business Administration E205. Formerly Business Administration E250. Course examines current models of strategy, structure, process interaction and their historical foundations. Students will apply current theory to trained cases and to current examples of organization adaptation in the business press. In addition, the course will examine in detail emerging patterns of strategy, structure, and process—the beginnings to appear in new organizational forms. Finally, comparisons will be drawn between U.S. and foreign patterns of adaptation. (F.SP) Staff

Executive Masters in Business Administration

2003. Decision Models. (1) Five hours of lecture for three weeks. This core course introduces students to quantitative concepts, techniques, and software with which all successful managers should be familiar. The objective of this course is to improve managerial decision making by introducing optimization and simulation techniques, problem formulation and solution, and project management. (F.SP) Staff

2005. Data Analysis for Management. (2) Ten hours of lecture for three weeks. Formerly Business Administration 2005S. The objective of this core course is to make students critically analyze statistical analysis using available software packages. Key concepts include interpretation of regression analysis, model formulation and testing, and diagnostic check- ing. (F.SP) Staff

210A. Managerial Economics. (2) Three hours of lecture for three weeks. This core course uses the tools and concepts of microeconomics to analyze decision problems within a business firm. Particular emphasis is placed on the firm’s choice of policies in determining markets, inputs usage, and output possibilities. (F.SP) Staff

with a flavor of the complex dilemmas one can face in business in trying to do both “good for society” and “well for shareholders.” It looks at CSR from a corporate governance perspective, and how it supports business objectives, core competencies, and bottom line profits. (F.SP) Staff

292. Financial Management of Nonprofit Organizations. (1) Eight hours of lecture for two weeks. Prerequisites: 203, financial experience, or equivalent. This course focuses on financial management issues faced by board members and senior and executive managers in nonprofit organizations. Students learn tools and techniques for effective planning and budgeting, how to control, evaluate and revise plans. Use and development of internal and external financial reports are studied with an emphasis on using financial information in decision making. Tools and techniques of financial management are applied to real world scenarios. (F.SP) Staff

292N. Topics in Nonprofit and Public Management. (1-3) One to three hours of lecture per week. Formerly Evening & Weekend Master in Business Administration 292M. Advanced study in the field of nonprofit and public management. Topics will vary from year to year and will be announced at the beginning of each semester. (F.SP) Staff

292R. Nonprofit Marketing and Fundraising. (2) Three hours of lecture per week. Formerly Business Administration E295. Recommended. This course is designed to provide the background, tools, and principles of major fundraising strategies: direct mail, online, major gifts, planned giving, capital campaigns, proposal writing, and corporate giving. The course further discusses ways to get funding for programs and marketing and looks at how fundraising is a subset of a larger marketing plan. Students learn how to brand an organization, make it more visible and turn marketing strategies into fundraising opportunities. (F.SP) Staff

292T. Topics in Socially Responsible Business. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of socially responsible business. Topics will vary from year to year and will be announced at the beginning of each semester. (F.SP) Staff

293. Individually Supervised Study for Graduate Students. (1-5) Course may be repeated for credit. One to five hours of independent study per week. Formerly Business Administration E293. This course allows graduate students to carry on independent research and study under the supervision of a faculty member. (F.SP) Staff

295A. Entrepreneurship. (3) Three hours of evenings of lecture. Prerequisites: Business Administration E206. Formerly Business Administration E266. The development of creative marketing strategies for new ventures, as well as the resolution of specific marketing problems in smaller companies which provide innovative goods and services. Emphasis is on decision making under conditions of weak data, inadequate resources, emerging markets, and rapidly changing environments. (F.SP) Staff

295B. Venture Capital and Private Equity. (3) Three hours of evenings of lecture. Prerequisites: Business Administration E205, E206. Formerly Business Administration E296. This advanced case-based course intended to provide the background, tools, and themes of the venture capital industry. The course is organized in four modules of the private equity cycle: (1) fund raising—examines how private equity funds are raised and structured, (2) investing—considers the interactions between private equity investors and the entrepreneurs they finance; (3) exiting—examines how and through which private equity investors exit their investments; and (4) new frontiers—views many of the key ideas developed in the course. (F.SP) Staff

295D. New Venture Finance. (2) Two hours of lecture per week. Prerequisites: Business Administration E206. A case-based course about financing new entrepreneurial ventures, emphasizing those that have the possibility of creating a national or international impact or both. It will take two perspectives—the entrepreneur’s and the investor’s—and it will place...
state of the competitive environment on business policies are also examined. (F,SP) Staff

201B. Global Economic Environment. (2) Ten hours of lecture for three weeks. This core course addresses the determination of economic concepts and financial practices at work in the global economic environment. Topics include: long-run productivity and growth, short-run economic fluctuations in both closed and open economies, exchange rates and the balance of payments, national and international monetary policies, and the causes and consequences of inflation. The instructor will draw examples from a number of countries and a variety of economies to illustrate theoretical concepts. (F,SP) Staff

203. Finance. (2) Ten hours of lecture for three weeks. This core course examines the wide menu of available assets, the institutional structure of U.S. and international financial markets, and the market mechanisms for trading securities. Topics include: discounting, capital budgeting, behavioral aspects of interest and dividends, and diversification and portfolio theory. The course will also provide introductions to asset pricing theory for primary and derivative assets and to the principles governing corporate financial arrangements and contracting. (F,SP) Staff

204. Operations Management. (2) Ten hours of lecture for three weeks. Prerequisites: 200S. This core course provides students with an understanding of the basic concepts of managing a complex, dynamic, and global business and introduces them to the tools that are available to deal with these issues. Students will also learn pertinent fundamental concepts in management science that are applicable to other functional areas. (F,SP) Staff

205. Creating Effective Organizations. (2) Three hours of lecture per week; Ten hours of lecture for three weeks. Prerequisites: 200S. Formerly Business Administration 205. This core course surveys knowledge about organizations and organizations in the workplace. The course will include: the study of the issues of individual behavior, group functioning, and the actions of organizations in their environments, and analysis from a number of perspectives of issues from customer care problems as work motivation, task design, leadership, communication, organizational design, and innovation. The class will explore the implications for the management of organizations through examples, cases, and exercises. (F,SP) Staff

206. Marketing Organization and Management. (2) Ten hours of lecture for three weeks. Prerequisites: 201A or equivalent. This course is designed to give students an overview of the marketing system and the marketing concept. Topics include: marketing research, segmentation, marketing decision-making, marketing structures, and evaluation of marketing performance in the economy and society. (F,SP) Staff

207. Ethics and Responsibility in Business. (1) One and one-half hours of lecture for 10 weeks. This course provides students with the ability to anticipate, critically analyze, and appropriately respond to the ethical, social, and political challenges that face managers operating in a global economy. (F,SP) Staff

209. Competitive and Corporate Strategy. (2) Ten hours of lecture for three weeks. Prerequisites: 201A or equivalent. This is a core course designed to introduce managers to: (1) the processes involved in industry and market analysis; (2) the development of a business strategy including market positioning, corporate strategy, and (3) the implementation of an integrated business program. Students will consider competing strategies as companies aim to achieve their own goals and objectives, often at the expense of their rivals, from the perspective of a general, enterprise-level manager charged with overall responsibility for a company’s performance in a variety of competitive and corporate contexts. (F,SP) Staff

233. Investments. (2) Three hours of lecture per week. This is a four-credit course in asset markets: equity markets, fixed income markets, futures markets, and options markets. It will focus on the valuation of assets in these markets, the empirical evidence on asset valuation models, and strategies that can be employed to achieve various investment goals. (F,SP)

252. Managerial Negotiations. (2) Ten hours of lecture for three weeks. A study of the negotiations process, including negotiations among buyers and sellers, managers and subordinates, company units, companies and organizational agencies, and management and labor. Both two-party and multi-party relations are covered. Coursework includes readings, lectures, and exercises. The course will cover the negotiation of real negotiations. A key focus of this course is the role of third parties in resolving disputes. (F,SP) Staff

256. Leadership. (2) Ten hours of lecture for three weeks. Prerequisites: 205 or equivalent. In this advanced elective course, students analyze the literature and developments related to such topics as: organization development, environmental determinants of organization structure and decision-making behavior, management of professionals, management in temporary structures, cross-cultural studies of management organizations, and industrial relation systems and practices. (F,SP) Staff

264. High Technology Marketing. (2) Ten hours of lecture for three weeks. Prerequisites: 206 or equivalent. This course provides students with an understanding of the management of organizations in their environments, and analysis from a number of perspectives of issues from customer care problems as work motivation, task design, leadership, communication, organizational design, and innovation. The class will explore the implications for the management of organizations through examples, cases, and exercises. (F,SP) Staff

275. Business Law: Managers and the Legal Environment. (2) Ten hours of lecture for three weeks. Prerequisites: Completion of all core courses or consent of instructor. A manager must understand the legal environments which impact business and understand how to work effectively with lawyers. This course addresses contemporary legal relationships and business agreements. Topics covered include: forms of business organization, duties of officers and directors, intellectual property, antitrust, contracts, employment, personal property and intangibles, and creditor relationships including bankruptcy. (F,SP) Staff

285. Real Estate Investments. (2) Ten hours of lecture for three weeks. Prerequisites: Completion of all core courses or consent of instructor. The course covers the key financial and economic concepts in real estate investing. It begins with basic investment analysis. We then value development sites across the main sectors: residential, retail, office, industrial, and hotel. We also cover contracting with publicly and privately owned developers and related steps. Finally, we study loan and equity structures (REITs), the secondary mortgage market, real estate in investment portfolios. (F,SP) Staff

292P. Strategic CSR. (1) One and one-half hours of lecture for 10 weeks. Discuss the field strategic CSR through a series of lecture, guest speakers, and projects. It will examine best practices used by companies in their efforts to anticipate, critically analyze, and appropriately respond to the social, ethical, and political challenges that face managers operating in a global economy. (F,SP) Staff

295T. Special Topics in Entrepreneurship. (1-3) This course is designed to give students an overview of the marketing system and the marketing concept. Topics include: marketing research, segmentation, marketing decision-making, marketing structures, and evaluation of marketing performance in the economy and society. (F,SP) Staff

298A. International Business. (3) Fifteen hours of lecture for three weeks. This required course entails an experimental study of an international business topic undertaken during a one-week field study session abroad (in Asia or Europe) in the final term of the program. The course culminates in a report on an applied management project undertaken in connection with the field studies and company visits. (SP) Staff

298C. International Field Seminar. (3) Course may be repeated for credit. Thirty hours of fieldwork per week for one week. Prerequisites: Business Administration 298A. This advanced course entails an experimental study of an international business topic undertaken during a one-week field study session abroad. The course includes a combination of lectures and site visits. (F,SP) Staff

Masters in Financial Engineering

230A. Fundamentals of Financial Economics. (2) Four hours of lecture per week for eight weeks. Formerly Business Administration 230A. The course discusses the basic theories of asset pricing. It begins with the standard discounted cash flow analysis, and generalizes this approach to develop the No Arbitrage Pricing Technique for security valuation. Topics will be fixed income securities, derivatives, contingent claims, basic principles of optimal portfolio theory, models of equilibrium asset pricing, including CAPM and related Factor Models. (F,SP)

230B. Advanced Corporate Finance. (2) Three to four hours of lecture per week for eight weeks. Formerly Business Administration 230B. This course teaches students to apply a business valuation framework to solve financial problems. Issues related to corporate governance and agency problems are also addressed. (F,SP) Staff

230C. Derivatives: Economic Concepts. (2) Four hours of lecture per week for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230C. The course is an introduction to the use and pricing of derivatives. It covers mathematical concepts and numerical methods underlying derivative analysis, the institutional structure of derivative markets, valuation of standard forwards, futures, options, and the binomial and Black-Scholes option pricing models and volatility estimation. Programming, modeling, and analysis of derivatives will be covered in-depth. (F,SP)

230D. Derivatives: Quantitative Methods. (2) Four hours of lecture per week for eight weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230D. This course emphasizes the pricing of derivatives in continuous time, from the formulation of the pricing problem to the implementation of computational and numerical solution techniques. (F,SP) Staff

230E. Empirical Methods in Finance. (3) Six hours of lecture per week for eight weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230E. This course covers probability and statistical techniques commonly used in financial analysis. It includes a review of normal, lognormal, CEV distribution, estimation and nonparametric techniques commonly used in finance (MLE, GMM, GARCH). Students will be introduced to finan-
230F. The Design of Securities for Corporate Financing. (1) Two hours of lecture per week for eight weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230F. This course reviews the design of financial instruments and discusses the factors that help determine financial strategy, thereby putting the design of financial packages in perspective. In particular, the course focuses on how risk management needs lead to the need for financial engineering and spurs financial innovation. (F,SP) Staff

230G. Equity and Currency Markets. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230G. This course examines several aspects of equity and currency markets and their relative importance. It provides models of and historical evidence on the average returns and volatility of returns on equities, on the trade-to-trade equity price behavior, on trading volume and patterns, and primary financial risks. Determination of spot and forward rates and volatility, high frequency dynamics, and how assets are examined by factor sensitivities, VAR, dynamic portfolio analysis and extreme value analysis and other risk management techniques. (F,SP)

230H. Financial Risk Management and Measurement. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230H. This course presents a risk management framework including market risk, credit risk, liquidity risk, settlement risk, volatility risk, kurtosis risk and other types of financial risks. Topics will include risk management techniques for different types of contracts and financial instruments such as duration, portfolio beta, and factor sensitivities. (F,SP) Staff

230I. Fixed Income Markets. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230I. This course provides a quantitative approach to fixed income securities and bond portfolio management. Topics include: fixed income securities, pricing and uses for portfolio management or for hedging interest rate risk, bond mathematics, term structure measurement and theory, immunization techniques, and the modern theory of bond pricing, and derivative instruments. (F,SP)

230J. Success and Failure in Financial Innovation. (1) Two hours of lecture per week for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230J. Seminar with readings and case studies illustrating some of the major successes and failures of modern financial innovation. They will learn how to measure success and failure and discuss case studies in portfolio insurance, long-term capital management, mortgage-backed securitization, and corporate enterprise-wide risk control. (F,SP)

230K. Dynamic Asset Management. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230K. This course builds on the techniques learned in 230H, Quantitative Methods for Derivative Pricing. The focus is to gain a deeper analysis of numerical and computational issues in pricing and calibration. The orientation of the course is hands-on, with heavy use of computational techniques applied to case studies. The primary objective of this course is to prepare students to tackle the latest challenges in quantitative pricing that they are likely to encounter in cutting-edge financial institutions. (SP) Staff

230L. Real Options and Commodity Derivatives. (2) Four hours of lecture per week for eight weeks. Prerequisites: 230D. This course covers real option theory. Topics include: the "convenience yield" in commodity futures prices, the theory of option pricing for commodity futures and options with non-current earnings; the optimal time for a firm to invest in or liquidate, and valuing and optimally undertaking staged investment decisions. The theoretical asset option pricing models that use an option based approach and characteristics of commodities and commodity derivatives will also be covered. (F,SP)

230M. Asset-Backed Security Markets. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230D and 230I. Formerly Business Administration 230M. This course introduces students to techniques to model and price asset-backed securities, credit derivatives, and other related debt instruments. The focus will be on modern theory of bond pricing, and derivative instruments. The course builds on the techniques learned in 230H and 230I and introduces new valuation methodologies and new techniques. (F,SP) Staff

230N. Applied Finance Project. (1-3) Independent study. Credit and grade to be awarded on completion of sequence. Prerequisites: Participation requires prior approval of the supervising faculty. Formerly Business Administration 230N-230O. Students will be required to complete an applied quantitative finance project that explores a quantitative finance problem that might be met in practice and involves the development or use of quantitative financial techniques. (F,SP) Staff

230O. Introduction to Stochastic Calculus. (2) Four hours of lecture per week for eight weeks. Formerly Business Administration 230O. The course introduces students to techniques and stochastic analysis employed in modern financial. Topics include: stochastic processes, Brownian motion, stochastic integral, differentials and Ito’s formula; martingales. (F,SP) Staff

230R. Advanced Computational Finance. (2) Two to four hours of lecture per week for eight weeks. Prerequisites: 230D. This course builds on the techniques learned in 230N, Quantitative Methods for Derivative Pricing. This course is designed for students seeking to understand the technical details of modeling but who do not need to do some high-level programming in a package such as MATLAB. Some empirical testing exercises will also be part of the project work. (F,SP) Staff

230W. Accounting and Taxation of Derivatives. (1) Three hours of lecture per week for seven and one-half weeks. This course provides a framework for students the understanding of the accounting and tax issues related to derivatives and hedging. It also fulfills the needs of students seeking jobs in the corporate sector and/or securities firms seeking to understand the relevant mathematics and accounting. A basic understanding of financial accounting is required. (F,SP) Staff

230VA. Credit Risk: Economic Concepts. (1) Three hours of lecture per week for six weeks. Focuses on the techniques currently used to model credit risk. The course will cover default probabilities, loss given default, correlation, credit portfolio analytics, bond valuation, and credit derivative valuation. Emphasis will be placed on model building, model validation, and interpreting model output. Students will be required to do some high-level programming in a package such as MATLAB. Some empirical testing exercises will also be part of the project work. (F,SP)

230V. Credit Risk Modeling. (1) Three hours of lecture per week for six weeks. Focuses on the techniques currently used to model credit risk. The course will cover default probabilities, loss given default, correlation, credit portfolio analytics, bond valuation, and credit derivative valuation. Emphasis will be placed on model building, model validation, and interpreting model output. Students will be required to do some high-level programming in a package such as MATLAB. Some empirical testing exercises will also be part of the project work. (F,SP) Staff

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Ph.D. in Business Administration

218S. Research Seminar in Economic Analysis and Policy. (1-3) Course may be repeated for credit. One and one-half hours of seminar every other week. Must be taken on a satisfactory/unsatisfactory basis. Research seminar presents case studies on economics applied to business management issues. (F,SP) Staff

229A. Doctoral Seminar in Accounting I. (3) Students will receive no credit for 229A after taking 238A. Three hours of seminar per week. Prerequisites: Business Administration 223A or equivalent, and Economics 2014A-2014B. This course provides a framework for students the understanding of the accounting and tax issues related to derivatives and hedging. It also fulfills the needs of students seeking jobs in the corporate sector and/or securities firms seeking to understand the relevant mathematics and accounting. A basic understanding of financial accounting is required. (F,SP) Staff

229B. Doctoral Seminar in Accounting II. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Business Administration 223A or equivalent, and Economics 2014A-2014B. This course provides a framework for students the understanding of the accounting and tax issues related to derivatives and hedging. It also fulfills the needs of students seeking jobs in the corporate sector and/or securities firms seeking to understand the relevant mathematics and accounting. A basic understanding of financial accounting is required. (F,SP) Staff

229C. Doctoral Seminar in Accounting III. (3) Three hours of seminar per week. Prerequisites: Business Administration 223A or equivalent, and Economics 2014A-2014B. This course provides a framework for students the understanding of the accounting and tax issues related to derivatives and hedging. It also fulfills the needs of students seeking jobs in the corporate sector and/or securities firms seeking to understand the relevant mathematics and accounting. A basic understanding of financial accounting is required. (F,SP) Staff

229D. Doctoral Seminar in Accounting IV. (2) Two hours of seminar per week. Prerequisites: Business Administration 223A or equivalent, and Economics 2014A-2014B. This course provides a framework for students the understanding of the accounting and tax issues related to derivatives and hedging. It also fulfills the needs of students seeking jobs in the corporate sector and/or securities firms seeking to understand the relevant mathematics and accounting. A basic understanding of financial accounting is required. (F,SP) Staff

Professor of the Graduate School
Recipient of Distinguished Teaching Award
229S. Research Seminar in Accounting. (2-4) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Advanced study in the field of Accounting. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

239A. Discrete Time Asset Pricing. (3) Three hours of seminar per week. Asset pricing and portfolio choice in partial equilibrium and asset pricing in General Equilibrium. Specifically, static and intertemporal theories of choice under risk and uncertainty and portfolio choice. Includes two-fund separation, Capital Asset Pricing Model, and the Arbitrage Pricing Theory. In a General Equilibrium framework, it covers the notion of complete markets and welfare theorems. Also, some macro-asset pricing models are developed in addition to an analysis of incomplete markets. (F,SP)

239B. Continuous Time Asset Pricing. (3) Three hours of seminar per week. Prerequisites: 239A. This course covers topics in dynamic asset pricing, portfolio choice and other fundamental issues in semianalytical time setting. The first part of the course covers basic mathematical and statistical results. Finance results that have been developed in continuous times include the Fundamental Theorem of Capital Asset Pricing, corporate securities, and default risk, the term structure of interest rates. In addition, results are developed on non-time additive utility. (F,SP)

239C. Empirical Asset Pricing. (3) Three hours of seminar per week. Prerequisites: Graduate level economic and/or finance. Introduces students to empirical issues in asset pricing empirical. Students learn key features of asset-price behavior and study how researchers test various theoretical models from finance and economics. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading.

239DA. Microstructure. (1.5) Three hours of lecture per week for eight weeks. Prerequisites: Graduate course in contract or game theory recommended. Introduction and guide to issues in empirical asset pricing. Students learn key features of asset-price behavior and study how researchers test various theoretical models from finance and economics, focusing on advantages and disadvantages of research designs. Intuition behind practical econometric tools is developed and applied to asset pricing questions. By critically evaluating research, students determine which characteristics of an empirical paper influence the finance profession. (F,SP)

239D-239G. Doctoral Seminar in Finance. (3;3;3) Three hours of seminar per week. Formerly Business Administration 239D. Recent developments in financial economics. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

239H. Research in Micro-Organizational Behavior. (3) Three hours of seminar per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 254A. Review of the research literature of micro-organizational behavior, including its sociological, political, and economic foundations. Topics include: job design, work attitudes, organizational commitment, organizational culture, control and participation in organizations, creativity, personality, socialization, leadership, industrial organization psych. (SP)

239I. Research in Macro-Organizational Behavior. (3) Three hours of seminar per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 254B. Review of the research literature of macro-organizational behavior, including its sociological, political, and economic foundations. Topics include: unemployment, wages, productivity, turnover, collective bargaining, strikes and arbitration, government regulation, internal labor markets, and trade contracts. (F,SP)

239J. Research in Industrial Relations and Labor. (3) Three hours of seminar per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 254C. Review of the research literature of industrial relations and labor, including its economic and institutional foundations. Topics include: unionism, wages, productivity, turnover, collective bargaining, strikes and arbitration, government regulation, internal labor markets, and trade contracts. (F,SP)

239K. Research Seminar in Organizational Behavior and Industrial Relations. (2-4) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading.

239L. Seminar in Marketing: Buyer Behavior. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Business Administration 269A. Topics include: buyer behavior. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading.

239M. Seminar in Marketing: Choice Modeling. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Business Administration 269A. Advanced topics seminar intended principally for Ph.D. students but open to advanced MBA students. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading.

239N. Seminar in Marketing: Marketing Strategy. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Business Administration 269A. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading. Three hours of seminar per week. Must be taken for unsatisfactory/satisfactory grading.

239S. Research Seminar in Finance. (2-4) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory basis. Advanced study in the field of Finance. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

259A. Research in Micro-Organizational Behavior. (3) Three hours of seminar per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 279A. Surveys recent literature on public decision-making in government institutions, emphasizing a systematic framework for evaluating questions of public policy formation. Examines the new institutionalism in political science, applies the methods of rational choice theory to political problems, and links relevant theoretical and empirical literatures in economics and political science. Considers implications of public choice for corporate strategy and business-government relations. (SP)

279B. The Political Economy of Capitalism. (3) Three hours of lecture per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 279B. Exposes students to historical development of contemporary capitalism. Class will: (1) compare the “classics” in political economy and their alternative explanations of markets, politics, labor, and culture in industrial society; (2) provide an overview of the history of the U.S. economic system and business institutions; and (3) examine competing theories of the corporation. (SP)

279C. Corporate Strategy and Technology. (3) Three hours of seminar per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 279C. The course has two broad objectives: (1) providing an overview of important work (mainly empirical) in the economics of technological change and technology policy; and (2) analyzing the role of technological and organizational innovation in firm strategy and performance. (F,SP)

C279I. Economics of Innovation. (3) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory basis. Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory basis. Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory basis.

279K. Institutions, Interest Groups and Public Policy. (2) Three hours of seminar per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 279K. Survey the role of interest groups in American democracy. The course has two objectives: (1) to provide an overview of the history of the U.S. economic system and business institutions; and (2) to examine the role of technological and organizational innovation in firm strategy and performance. (F,SP)

279L. Seminar in Business and Public Policy. (2-4) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory basis. Three hours of lecture per week. Study of innovation, technical change, and intellectual property, including: the industrial organization and performance of high-technology industries and firms; the use of economic, patent, and other bibliometric data for the analysis of technical change; legal and economic issues of intellectual property rights; science and technology policy; and the consequences of innovation on economic growth. Methods of analysis are both theoretical and empirical, econometric and case study. Also listed as Economics C222. (F,SP) Staff

279S. Research Seminar in Business and Public Policy. (2-4) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Advanced study in the field of business and public policy. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

289A. Doctoral Seminar in Real Estate. (4) Course may be repeated for credit. One-half to three hours of seminar per week. Must be taken for unsatisfactory/satisfactory basis. Prerequisites: Ph.D. equivalents of macro- and micro-economics, finance/or accounting, statistics and econometrics. Formerly Business Administration 289A. This seminar is intended to provide advanced study in the field of real estate. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)
and will be announced at the beginning of each semester. (F,SP)

297B. Research and Theory in Business: Behavioral Science. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Ph.D. student or consent of instructor; previous work in statistics and probability theory. Formerly Business Administration 292B. The focus is upon defining a research problem, designing and employing specialized techniques to solve the problem. Topics will include: concepts of causality; analysis of variance; experimental design; survey research; observation; and multivariate analytical techniques. (F)

297T. Doctoral Topics in Business Administration. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of business administration. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

299A. Individual Research in Business Problems. (1-12) Course may be repeated for credit. Forty-five hours of work per unit per term. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Ph.D. student standing and consent of instructor. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course does not satisfy unit or residence requirements for doctoral degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Formerly Business Administration 602. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree. (F,SP)

Professional Courses

300. Teaching Business. (2) Six hours of lecture and 24 hours of discussion per term. Must be taken on a satisfactory/unsatisfactory basis. This course will cover the broad range of knowledge and skills necessary to teach in top business schools. Teaching business effectively requires a myriad of pedagogical styles and techniques, as well as the confidence and preparation necessary to convey the course material. This course seeks to prepare doctoral students for careers as faculty in business schools, giving them the insight and experience that will make their first courses successful. Students will learn effective teaching strategies by observing faculty mentors, reading pedagogical texts, and openly discussing the challenges and rewards of business instruction with experienced faculty and graduate student instructors (GSIs). Students will also learn the admittance requirements of running courses so as to better facilitate learning in the future classes. (F,SP) Staff

Celtic Studies

(College of Letters and Science)

Program Office: 6303 Dwinelle Hall, (510) 642-4484
Undergraduate Student Services: (510) 642-4661
ls.berkeley.edu/dept/celtic
Director: Eve Sweetser, Ph.D.
Advisory Committee
Thomas Brady (Phenomenology)
Gary Holland (Linguistics)
Kathryn Kar (Celtic Studies)
Daniel Melia (Rhetoric, Celtic Studies)
Jennifer Miller (English)
Esther O’Hara (Celtic Studies)
Annatee Rejhon (Celtic Courses)
Eve Sweetser (Linguistics)

The Undergraduate Student Affairs Officer is located in 6303 Dwinelle Hall: (510) 642-4681.

Major in Celtic Studies

The program in Celtic studies is designed to give students both a broad understanding of the place of Celtic languages and cultures in the world and a firm grounding in one or more of the Celtic languages. In addition to at least three semesters of language study and the other major requirements, students will be required to organize their studies with reference to one other methodological or disciplinary area chosen from anthropology, art history, comparative literature, linguistics, history, rhetoric, Scandinavian, Slavic, or another language and literature. Some students may find it advantageous to declare a minor in one of the language departments that offers it. Students interested in the major should consult the student affairs officer at the Celtic Program’s office in the ISSA Cluster in 6303 Dwinelle Hall.

Major Requirements

Lower Division. Celtic Studies 70 plus two semester courses from the following course sequences: 15 and 85 or 16 and 86, or the equivalent. Students with prior knowledge of a Celtic language may apply for Credit by Examination.

Upper Division. Upper division courses totaling at least 3 units including either 129 or 129, 139 or 130, and C168 or 169. One class from the following list must be taken: 102A, 102B, 105A, 105B, 144A, 144B, 145A, 146A, 146B. Also, 8 units must be completed from among the following: 118B, 119B, 119A, 119B, 125, or 126. Electives: In addition, upper division elective courses may be selected from Celtic Studies 161, 169, 170, 171, and courses not required of major requirements. Scandinavian 123, 160, and 165 may also count toward the major. Courses from the following list may be taken with the approval of the major adviser: Anthropology 180; Art History 160; Comparative Literature 152 and 165; History 150A, 151A, 151B, and 185A; Linguistics 130 or 131.

Minor in Celtic Studies

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. The minor in Celtic studies requires:

Lower Division. Celtic Studies 70.

Upper Division. Five upper division courses chosen from the major list and approved by the major adviser. All upper division courses applied to the minor must be completed on a letter-graded basis; at least three of the five courses must be completed at Berkeley, and a minimum overall GPA of 2.0 is required in the upper division courses applied to the minor.

Students interested in the minor should consult the student affairs officer at the Celtic Program’s office in the ISSA Cluster in 6303 Dwinelle Hall.

Honors Program

In order for students to graduate with honors in Celtic studies, they must have achieved an overall GPA of 3.3 or higher in all work completed in the University, a minimum 3.5 GPA in all courses required for the major, and they must have taken both Celtic Studies 128 and 129 (only one of the two is required for the major). A thesis is also required, which should normally emanate from H195A-B, the Honors Seminar.

Education Abroad

The University offers students the opportunity to study abroad in the Republic of Ireland, England, Scotland, Wales, and Northern Ireland. These programs feature language study along with courses in culture, history, literature, and many other areas within the humanities and social sciences. Courses may be applied toward language and upper division credit in the major or minor with advance approval of the major adviser. Details of the programs are available from Berkeley Programs for Study Abroad, 160 Stephens Hall (510) 642-1356; studyabroad.berkeley.edu.

Graduate Studies

Although no graduate degrees in Celtic studies are offered at present, students may pursue research in Celtic languages, literature, history, anthropology, etc., in a variety of departments. Dissertations on Celtic subjects have been accepted in the Departments of Comparative Literature, History, Linguistics, Rhetoric, English, French, and Anthropology, and in the Folklore Program.

Lower Division Courses

R1A-R1B. Voices of the Celtic World. (4;4) Three hours of lecture per week. Prerequisites: UC Entry Level Writing Requirement or equivalent; R1A or equivalent is prerequisite to R1B. Formerly 1A-1B. Reading and Composition: works of Celtic writers both in English and in translations from Celtic languages. In addition to training in textual analysis and descriptive and argumentative writing, the course will discuss the major ‘voices’ of distinctive modes of cultural expression chosen by important authors from a Celtic milieu. Readings will be chosen from a variety of modern Irish, Welsh, highland Scots, and Breton writers. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half. (F,SP) Staff

15. Elementary Modern Irish. (4) Three hours of language instruction and one hour of laboratory per week. A beginner's course in the Celtic language. Students will be learning the basics of Irish grammar, and developing ability to understand, speak, read, and write the language. (F,SP) Staff

16. Introduction to Modern Welsh. (4) Three hours of language instruction and one hour of laboratory per week. Introduction to modern Welsh conversation and grammar. Emphasis in the first-semester class is on pronunciation, mastering consonant mutations, using several tenses (present, perfect, imperfect, past), and the acquisition of basic vocabulary. Simple written materials based on traditional Welsh stories will supplement classroom oral-aural work. (F) Klar, Rejhon

70. The World of the Celts. (4) Three hours of lecture per week. An overview of the history of Celtic-speaking peoples from Indo-European times, including linguistic/archaeological evidence for the emergence of the Celtic language group in first millennium B.C. Europe. Celtic religion and comparative Indo-European mythology. Discussion of the validity of classical reports of the Celtic culture. Celtic tribal migrations in the historical period; the foundation of Brittany. The decline and suppression of modern Celtic languages; Celts in the New World. (F,SP) Melia

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of semi-
narr per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks.

Three hours of seminar per week per unit for five weeks. Two sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore standing and two small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

85. Intermediate Modern Irish. (4) Three hours language instruction and one hour of laboratory per week. Prerequisites: 15 or 9 and 75. The second semester of Modern Irish. Continuing instruction in speaking, comprehension, reading and writing skills. By the end of this semester, students will have become familiar with all of the central grammatical constructions of Irish, and will be ready to begin reading accessible Irish prose. (F,SP) Staff

86. Intermediate Modern Welsh. (4) Three hours of language instruction and one hour of laboratory per week. Prerequisites: 16 or 6 and 76 or consent of instructor. The continuation of Celtic Studies 106A, emphasizing progress in conversation, grammar, and idiom. Using tenses previously learned, students will learn how to ask and answer many types of questions and complete prepresentions and idiomatic usages of prepositions. Future and conditional tenses and simple relative clauses will be introduced. Level-appropriate written materials will supplement class work, and students will begin learning about Welsh culture as they learn the language. (SP) Klar, Rejohn

98. Directed Group Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Freshman and sophomore standing and consent of instructor. Directed individual study on special topics approved by Celtic Studies. (F,SP) Staff

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Freshman and sophomore standing and consent of instructor. Directed individual study on special topics approved by Celtic Studies. (F,SP) Staff

Upper Division Courses

102A. Elementary Breton. (4) Three hours of lecture and one optional hour of laboratory per week. This course introduces students to Breton through the medium of written word and practice. The primary language laboratory is required. (F,SP) Klar

102B. Advanced Breton. (4) Three hours of lecture and one optional hour of discussion per week. Prerequisites: 102A. Advanced readings in Breton. Continuation of Celtic Studies 102A. This course will teach students to speak, read, and write modern literary Breton. We will follow the curriculum established by the only good introductory Breton text in English, which I will supplement with exercises and readings from current Breton publications and contemporary literature. Students will have covered most of the grammar of Breton by the end of the course. (F,SP) Staff

105A. Old and Middle Irish. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 15 or 75 and consent of instructor. This course is designed to prepare students for both literary and historical study of Early Irish. Students will be introduced to the Old Irish language and its literature, the writing, grammar, and vocabulary of the ancient Irish. (F,SP) Staff

105B. Readings in Old and Middle Irish. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Successful completion of Celtic Studies 105A or equivalent. Designed to offer students who have already taken the basic grammar course in Old and Middle Irish (105A) further opportunity to work with important texts written in the period 200 B.C.-1000 A.D. Students will continue their knowledge of the Old Irish language, as well as their grasp of the vernacular tradition as a whole. Texts will include both prose and poetry, and major genres, such as epic, legend, and genealogy. (SP) Staff

119B. Welsh and Arthurian Literature of the Middle Ages. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week and one hour of discussion per week. A selective study of major surviving works of Welsh prose and poetry of the Middle Ages, with special emphasis on the development of the legendary history of King Arthur in England. All works will be read in English, but course will be coordinated with 106A-106B for those who wish to do some of the readings in Welsh. (SP) Staff

125. Irish Literature in Translation. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Formerly 125A-125B. A selective study of key themes in modern Irish literature. Texts will include novels, short stories, and poetry and will be accompanied by works originally written in Irish. All will be read in English, but the course will be coordinated with 75 or 115A-115B for those who wish to do some of the reading in Irish. (F,SP) Klar, Rejohn

128. Medieval Celtic Culture. (4) Three hours of lecture per week. A study of medieval Celtic culture, its society, laws, religion, history, and the daily life of the Celtic peoples, as they are reflected in a selection of texts ranging from medieval literary works to legal texts and historical chronicles. All works will be read in English translation. (F,SP) Staff

129. Aspects of Modern Celtic Cultures and Folklore. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. A comparative introduction to modern Celtic cultures; principally Irish, Welsh, Scottish Gaelic, and Breton. The development of the distinctive cultures of the Celtic "nations without states" from 1500 to the present: an examination of the role of minority cultures and minority languages in larger political cultural entities. Theme topics will vary, but will include folklore, nationalism and linguistic history from time to time. (F,SP) Staff

138. Irish Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Celtic literature 700-1800 (in translation). Study of the prose sagas-cycles, satires, classical lyric poetry, and bardic poetry, developing the mythological and traditional background of modern Irish literature. (F,SP) Staff

139. Irish Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Irish literature 1800 to the present. (F,SP) Staff

144A. Modern Welsh Level 3. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 16 and 86 or consent of instructor; this course continues the Celtic Studies 16-86 sequence. Advanced grammatical concepts are introduced and vocabulary building (especially idioms) is emphasized. Students read materials such as magazines, newspapers, catalogues, and popular novels. Regular language laboratory attendance is required. (F,SP) Staff

144B. Modern Welsh Level 4. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 144A or consent of instructor. This course extends reading and vocabulary building; it also introduces students to the standard literary languages; brief compositional exercises will be based on this material. (F,SP) Staff

145A. Intermediate Irish Language. (4) Three hours of lecture and one hour of laboratory per week. Prerequisites: Two semesters Irish language or consent of instructor. The third semester of Modern Irish. Designed for students who have completed two semesters of formal instruction. Continuation of stress on vocabulary building and reading of texts with intensive pronunciation drills to activate the learned vocabulary. Idiomatic usage will be reinforced in both oral and written exercises. Class activities will include conversation and discussion of assigned texts in Irish. (F,SP) Staff

145B. Modern Irish Level Four. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 145A or consent of instructor. The fourth semester of Modern Irish. Readings in Irish literature will be a major focus of the curriculum but will also be accompanied by advanced grammatical instruction and conversational practice. (F,SP) Staff

146A. Medieval Welsh Language and Literature. (4) Three hours of lecture per week. Selected works of medieval Welsh prose and poetry are read in Middle Welsh. Grammar instruction and in-class translations accompany lectures on important themes in medieval Welsh literature. (F,SP) Klar, Rejohn

146B. Medieval Welsh Language and Literature. (4) Three hours of lecture per week. Prerequisites: 106A or consent of instructor. A selection of Medieval Welsh prose and poetry is read in conjunction with lectures on key themes in medieval Welsh literature and tradition. (F,SP) Klar, Rejohn

C186. Celtic Mythology and Oral Tradition. (4) Three hours of lecture per week. The course will introduce students to: (1) the pre-Christian beliefs of the Celts and Indo-European peoples; (2) the historical narratives in which such beliefs are encoded; and (3) the methodology of investigating ancient and medi eval belief systems. Also listed as Religious Studies C109. (SP) Klar

170. Topics in Celtic Studies. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Completion of reading and composition 1A-1B or equivalents; consent of instructor. Topics in this course will be offerings on areas of Celtic language and culture which are not covered in other Celtic studies courses. Topics might include (but would not be limited to) the Celtic romantic tradition, the Celt in films, Celtic art, nationalist politics in Celtic regions, and current trends in Celtic research. (F,SP) Klar, Staff

171. Celtic Romanticism. (4) Three hours of lecture per week. From the Classical age to the 21st century, Celts have fascinated people. This course explores the different ways in which Celts have been perceived by outsiders, the ways in which Celts have presented themselves to the world. The recurring themes of freedom and independence, as well as the warrior and druid types, are stressed. The course also explores the ways in which the romantic idealizations of Celts have been appropriated by native nationalist political movements and by European imperialist ventures. All readings in English. (F,SP) Klar

173. Celtic Christianity. (4) Three hours of lecture per week. This course considers the evidence for the presence of early Christian believers in the so-called "Celtic" areas of western Europe. Students will examine how the Celtic peoples received Christianity in the context of native (pagan) religion; they will look specifically at how the Roman Church doctrine influenced the doctrinal stands of the early Celtic church(es), and vice versa, with particular attention to the Pelagian controversy, the date of Easter, the monastic tonsure, and the use of penitentials. The period covered is approximately 70 CE to 800 CE. (F,SP) Klar

H195A-H195B. Honors Course. (3) Independent study. Prerequisites: Open only to honors seniors in the group major in Celtic Studies. Course may take one or two semesters at the option of the instructor and student with credit to be earned upon completion of a successful thesis. Successful completion of the course will normally, but not necessarily, mean the awarding of honors. (F,SP) Staff
Chemical Engineering Major

The College of Chemistry offers a major in chemical engineering leading to the B.S. degree. This program equips the student for professional work in development, design, and operation of chemical processes and of process equipment. Students with high scholastic attainment are well prepared to enter graduate programs. The curriculum is accredited by the Accreditation Board for Engineering and Technology.

The requirements for the B.S. degree are: A total of 120 semester units; Mathematics 1A, 1B, 53, 54A; Chemistry 1A, 1B, 110A, 110B, 110C, or Physics 137A; Chemistry 140, 141, 142, 150A, 150B, 154, 160, 162; Engineering 7, 45, 190; Electrical Engineering 100; and Biology 1A. Additional technical courses are required to complete either the open elective program or one of the concentrations within the chemical engineering program. Students must satisfy the Entry- Level Writing, the American History and Institutions, and the American Cultures breadth requirements. Nineteen units in English composition, humanities, and social sciences are required to fulfill the breadth requirement. See the Announcement of the College of Chemistry for additional information about the chemical engineering program.

Undergraduate Research. Students are encouraged to take individual undergraduate research in collaboration with one of the faculty during their junior or senior year.

Joint Major Programs with the College of Engineering. Two joint major curricula involving the College of Engineering and Chemstry are offered: (1) Chemical Engineering/ Materials Science and Engineering and (2) Chemical Engineering/ Nuclear Engineering. Each joint major includes the core courses in both departments. Details on these curricula can be found in the Announcement of the College of Chemistry and the College of Engineering Announcements. A Guide to Undergraduate and Graduate Study.

Intercollegiate Transfers. Transfer applicants are expected to complete, at a minimum, courses equivalent to Chemistry 1A-1B, Mathematics 1A-1B, Physics 7A (calculus-based mechanics and wave motion), English 1TA, and two additional courses toward the major before transfer. In addition, completion of a course in computer programming for science or engineering students, additional mathematical and calculus-based courses in physics, engineering, and some biology is encouraged. Note: Coursework taken the summer before enrollment at Berkeley is not considered in the selection of applicants.

Chemical Engineering Minor

A minor in chemical engineering will be awarded to students who have successfully completed five upper division chemical engineering courses as follows: 140, 141, and 150A plus any two courses selected from 142, 150B, 162, 170A, 170B, 171, 176, C178, or 179. Students who have completed courses in other departments at Berkeley that are essentially equivalent to 141 and 150A can substitute other courses from the above list. At least three of the five courses taken for the minor must be taken at Berkeley. Students must achieve at least a 2.0 GPA in the courses taken for the minor. (F,S) Credit will be given for one course taken at another institution and accepted by the College of Chemistry as equivalent to courses at Berkeley. For the minor to be awarded, students must submit a notification of completion of the minor by 420 Latimer Hall.

Note: Consult with your college or school for information on rules regarding overlap of courses between majors and minors.
nontflow processes involving homogeneous and heter-
genous systems. (SP)

150A. Transport Processes. (4) Three hours of lec-
ture and one hour of discussion per week. Prerequi-
sites: 140 with a grade of C- or higher; Math 54, which
may be taken concurrently. Principles of transport of
mass and heat transfer with application to chemical
processes. Laminar and turbulent flow in pipes and
around submerged objects. Flow measurement.
Heat convection and conduction; heat transfer coeffi-
cients. (SP)

150B. Transport and Separation Processes. (4)
Three hours of lecture and one hour of discussion per
week. Prerequisites: 150A with a grade of C- or higher;
Engineering 7 or an acceptable computer program-
ning language, and consent of instructor. Principles of
mass and heat transfer with application to chemical pro-
cesses. Diffusion and con-
vection. Simultaneous heat and mass transfer; mass
transfer coefficients. Design of staged and continu-
ous separations processes. (F)

154. Chemical Engineering Laboratory. (3) One
hour of lecture and eight hours of laboratory per week.
Prerequisites: 142, 150B, Engineering 190. Experi-
ments in physical measurements, fluid mechanics,
heat and mass transfer, kinetics, and separation pro-
cesses. Emphasis on investigation of basic relation-
ships important in engineering. Experimental design,
analysis of results, and preparation of engineering
reports are stressed. (F,SP)

157. Transport Processes Laboratory. (3) One
hour of lecture and two hours of laboratory per week.
Prerequisites: 150A and 150B, may be taken concur-
rently. Physicochemical properties of materials. Fluid
mechanics, heat and mass transfer experiments illus-
trating principles and applications of transport phe-
nomena in chemical engineering practice. Experiments
illustrate the application of chemical engineering
principles to modern technologies, such as micro-
electronic processing, biotechnology, and materials
processing. (F,SP)

160. Chemical Process Design. (4) Three hours
of lecture, one hour of discussion, and three hours of
computer laboratory per week. Prerequisites: 142;
150B. Design principles of chemical process equip-
ment. Design of integrated chemical processes with
emphasis upon economic considerations. (F,SP)

162. Dynamics and Control of Chemical Pro-
cesses. (4) Three hours of lecture and four hours of
laboratory per week. Prerequisites: 150B; Mathematics
53 and 54, or equivalent. Principles of fluid dynam-
ic processes and methods and theory of their control.
Implementation of computer control systems on lab-
oratory processes and process simulations. (F,SP)

170A. Biochemical Engineering. (3) Three
hours of lecture per week. Prerequisites: 150B or consent
of instructor. Emphasis on the first of a two-semester
sequence intended to introduce chemical engineers to
the basic concepts of biochemical engineering. The
course focuses on the use of chemical engineering
skills and principles in the analysis and design of bio-
logically-based processes. No previous background
in the biological sciences has been assumed, and no
subsection of the course has been set aside to cover
cellular and molecular biology, biochemistry, molecular
biology, or microbiology. Instead, such material will
be introduced as necessary throughout the course.
The main emphasis of the 170A-170B sequence will be
on biochemical kinetics, heat and mass
transfer, thermodynamics, and transport phenomena
as they apply to enzyme catalysis, protein engineering,
microbial growth and metabolism, fermentation and
bioreactor design, product recovery, and downstream
processing. (SP, Clark)

170B. Biochemical Engineering. (3) Three
hours of lecture per week. Prerequisites: 170A. Formerly 170.
The second of a two-semester sequence intended to
introduce chemical engineers to the basic concepts
of biochemical engineering. The course focuses on
the use of chemical engineering skills and principles in
the analysis and design of biologically-based pro-
cesses. The main emphasis of the 170A-170B se-
quence will be on biochemical kinetics, heat and mass
transfer, thermodynamics, and transport phenomena
as they apply to enzyme catalysis, protein engineering,
microbial growth and metabolism, fermentation and
bioreactor design, product recovery, and downstream
processing. (SP, Clark)

C170L. Biochemical Engineering Laboratory. (3)
Six hours of laboratory and one hour of lecture per
week. Prerequisites: 170A (may be taken concur-
rently) or consent of instructor. Laboratory techniques
for the preparation and organisms in batch and con-
tinuous reactions. Enzymatic conversion processes.
Recovery of biological products. Also listed as Chem-
istry C170L. (F)

171. Transport Phenomena. (3) Three hours of lec-
ture per week. Prerequisites: 150B. Study of moment-
um, energy, and mass transfer in laminar and turbu-
ent flow.

176. Principles of Electrochemical Processes. (3)
Three hours of lecture per week. Prerequisites: 141;
150B. Principles and application of electro-
chemical equilibria, kinetics, and transport processes.
Technical electrolysis and electrochemical energy
conversion. (F)

178. Polymer Science and Technology. (3) Three
hours of lecture and three hours of laboratory per week.
An interdisciplinary course on the synthesis, charac-
terization, and properties of polymeric materials. Emphasis
on the molecular origin of properties of poly-
meric materials and technological applications. Topics
include single molecule properties, polymer mixtures and
statistical mechanical concepts of polymer crystallites.
Experiments in polymer synthesis, characterization,
and physical properties. Also listed as Chemistry
C178. (F,SP) Segalman

179. Process Technology of Solid-State Materials
Devices. (3) Three hours of lecture/laboratory per week.
Prerequisites: Engineering 45; one course in
electronic circuits recommended; senior standing.
Chemical processing and properties of solid-state materials.
Crystals growth and purification. Thin film
technology. Applications of processing to the
manufacture of semiconductors and solid-state
devices. (SP)

185. Technical Communication for Chemical Engi-
neers. (3) Course may be repeated with consent of
instructor. Three hours of lecture per week. Prerequisites:
140; Satisfactory completion of UC Entry-Level Writing Requirement; satisfaction of
Chemical Engineering English composition requirement and
satisfactory language skills as judged by the instructor;
Development of technical writing and oral presentation
skills in formats commonly used by chemical en-
gineers. (F,SP)

H194. Research for Advanced Undergraduates.
(2-3) Course may be repeated for credit. Individual
research conference with instructor standing; a
minimum GPA of 3.4 overall at Berkeley. Original
research under direction of one of the members of
the staff. (F,SP)

195. Special Topics. (2-4) Course may be repeated
for credit. Individual conferences. Prerequisites: Con-
sent of instructor: Lectures and/or tutorial instruction
on special topics. (F,SP)

196. Special Laboratory Study. (2-3) Course may
be repeated for credit. Individual conferences. Prere-
quisites: Senior standing and consent of instructor.
Special laboratory or computational work under direc-
tion of one of the members of the staff. (F,SP)

197. Field Study in Chemical Engineering. (1-4)
Course may be repeated for credit. Three hours of
field work per week per unit. Must be taken on a
passed/not passed basis. Prerequisites: Upper divi-
sion standing and consent of instructor. Supervised
experience in off-campus organizations relevant to
specific aspects and applications of chemical engi-
neering. Written report required at the end of the term.
Course does not satisfy unit or residence require-
ments for the bachelor's degree. (F,SP) Strauss

198. Directed Group Study for Undergraduates.
(1-3) Course may be repeated for credit. One hour of
lecture per week per unit. Must be taken on a passed/
not passed basis. Prerequisites: Completion of 60
units of undergraduate study and in good academic
standing. Supervised research on a specific topic.
Enrollment is restricted; see "Introduction to Courses
and Curricula" section in this catalog (F,SP)

199. Supervised Independent Study and Research.
(1-4) Course may be repeated for credit. One to four
hours of independent study per week. Must be taken
on a passed/not passed basis. (F,SP) Staff

Graduate Courses

230. Mathematical Methods in Chemical Engi-
neering. (3) Three hours of lecture per week. Pre-
requisites: Math 53 and 54 or equivalent; open to
seniors with consent of instructor. Mathematical for-
mulation and solution of problems drawn from the
fields of heat and mass transfer, fluid mechanics, ther-
modynamics, and reaction kinetics employing ordi-
nary and partial differential equations, variational calcu-
lus, and Fourier methods. (F)

232. Computational Methods in Chemical Engi-
néeering. (3) Three hours of lecture per week. Pre-
requisites: 230. Open to senior honor students.
Introduction to modern computational methods
for treatment of problems not amenable to analytic
solutions. Application of numerical techniques to
teaching chemical engineering calculations with emphasis on computer
methods.

240. Thermodynamics for Chemical Product and
Process Design. (3) Three hours of lecture per week.
Prerequisites: Math 53 and 54 or equivalent; 141 or
equivalent; open to seniors with consent of instruc-
tor. The covered includes thermodynamics of pure substances and mixtures, interfacial thermo-
dynamics, statistical mechanics, and computer simu-
lations. (F)

244. Kinetics and Reaction Engineering. (3) Three
hours of lecture per week. Prerequisites: 142 and 230 or
equivalent; open to seniors with consent of instruc-
tor. Microscopic processes in chemical reactors: kinet-
ic, catalysis. Interaction of mass and heat transfer in
chemical processes. Performance of systems with
chemical reactors. (F)

245. Catalysis. (3) Three hours of lecture per week.
Prerequisites: 244 or Chemistry 223, or consent of
instructor. Adsorption and kinetics of surface reac-
tions; catalyst preparation and characterization; poi-
soning, selectivity, and empirical activity patterns in
catalysis; surface chemistry, catalytic mechanisms and modern experimental techniques in catalytic
research; descriptive examples of industrial catalytic systems. (SP)

(3) Three hours of lecture per week. Prerequisites:
Graduate standing or consent of instructor. Electrode
processes in electrolysis and in galvanic cells. Charge
and mass transfer in ionic media. Criteria of scale-up.

248. Applied Surface and Colloid Chemistry. (3)
Three hours of lecture per week. Prerequisites: Gradu-
ate standing or consent of instructor. Principles of
surface and colloid chemistry with current applica-
tions; surface thermodynamics, wetting, adsorption
and desorption, dispersive systems, surface colloids,
interacting electrical double layers and colloid stability,
kinetics of coagulation, and electrokinetics.

249. Biochemical Engineering. (3) Three
hours of lecture per week. Prerequisites: 150A-150B; Molecu-
lar and Cell Biology 102; Chemistry 112B, 120B, or
consent of instructor. Application of chemical engi-
néeering principles to the processing of biological and
biochemical materials. Design of systems for culti-
vation of microorganisms and for the separation and
purification of biological products. (SP)

250. Transport Processes. (3) Three hours of lec-
ture per week. Prerequisites: 150A, 150B, and 230, or
equivalent; open to seniors with consent of the instruc-
tor. Basic differential relations of mass, heat, and
momentum transport for Newtonian and non-Newton-
ian fluids; exact solution techniques; scaling and singular perturbations; creeping
flow; laminar boundary layers; turbulence; hydrodynamic stability. (SP)

256. Advanced Transport Phenomena. (3) Three hours of lecture per week. Prerequisites: 230. Formulation and rigorous analysis of the laws governing the transport of mass, heat, and mass, with special emphasis on chemical engineering applications. Detailed investigation of laminar flows complemented by treatments of turbulent flow systems and hydrodynamic stability. (SP)

C258. Physicochemical Hydrodynamics. (3) Three hours of lecture per week. Prerequisites: A first graduate course in fluid mechanics is recommended. An introduction to the hydrodynamics of capillarity and wetting. Short-range forces in dimensionless numbers, scaling and lubrication approximation, Rayleigh instability, Marangoni effect. The moving contact line. Wetting and short-range forces. The dynamic contact angle. Dewetting. Coating flows. Effect of surfactants and electric fields. Wetting of rough or porous surfaces. Contact angles for evaporating systems. Also listed as Mechanical Engineering C268. (F,SP) Morris

295. Special Topics in Chemical Engineering. Prerequisites: Open to properly qualified graduate students. Current and advanced study in chemical engineering, primarily for advanced graduate students. (F,SP)

295B. Electrochemical, Hydrodynamic, and Interfacial Phenomena. (2) Course may be repeated for credit. Prerequisites: Open to properly qualified graduate students. (F,SP)

295D. Development of Biopharmaceuticals. (2) This course will present the process of taking a discovered biological activity through steps leading to a pharmaceutical product fit for marketing to the public. Students will gain understanding of product development in a modern biotechnology company. This course focuses on pharmaceuticals produced by biotechnology and from human blood plasma. (SP)

295F. Battery Technologies: Addressing the Growing Demand for Electrical Energy Storage. (3) Prerequisites: Open to properly qualified graduate students with consent of instructor. Incorporating ideas from a variety of disciplines, this course aims to equip students with the concepts and analytical skills necessary to assess the utility and viability of various battery technologies in the context of a growing demand for electrochemical energy storage. The course will focus on the electrochemical and physical considerations with respect to the physical principles of operation, design, and manufacturing of various battery technologies. Traditional chemical engineering science is integrated with the critical issues of materials selection, cost, and market analysis, and policy considerations to provide a complete picture of the engineering and development of modern battery storage systems. (F) Gur, Srinivasan

295K. Current Topics in Metabolic Engineering. (1) One hour of lecture per week. Prerequisites: 170 or equivalent, Molecular and Cell Biology 102 or equivalent, or consent of instructor. This course will survey recent advances in metabolic engineering, including the topics of metabolic networks, flux analysis, and related disciplines. Topics of interest include flux analysis, recombinant gene expression, metabolomics, proteomics, transcriptomics, physiology, and microbial secondary metabolites. Students will be required to attend class and to prepare and present a literature research paper. A working knowledge of cellular biology is necessary. (F,SP)

C295M. Topics in Fluid Mechanics. (1,2) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Starting in the fall semester, special topics will be announced at the beginning of each semester that the course is offered. Topics may include transport and mixing, geophysical fluid dynamics, oceanic free surface flows, non-Newtonian fluid mechanics, among other possibilities. Also listed as Environ Sci, Policy, and Management C291, Physics C290I, Math- ematics C290L, Mechanical Engineering C290K, Mechanical Engineering C295A, and Bioengineering C290C. (F,SP) Staff

295N. Polymer Physics. (3) Three hours of lecture per week. Prerequisites: 290 and 240. This course, which is based on Grot Strobl's book The Physics of Polymers, will address some of the important physical properties of polymer liquids and solids. This includes phase transitions, crystallization, morphology of multiphase polymer systems, mechanical properties, response to mechanical and electric fields, and fracture. When possible, we will develop quantitative molecular models that predict macroscopic behavior. The course will address experimental data and technical challenges of polymerization scattering, rheology, and dielectric relaxation. (SP)

295Q. Chemical Engineering Management. (3) Prerequisites: Graduate standing or consent of instructor. Students will participate in solving open-ended technical and business problems facing management in an industrial setting. Emphasis will be on problem synthesis, creative and strategic thinking, and communication skills. Objectives of the course are to provide an understanding of: (1) what is expected of a new engineer in industry; (2) the vision of management; and (3) the skills needed for success. (SP)

295P. Introduction to New Product Development. (3) Prerequisites: Graduate standing or consent of instructor. This course is part of the product development initiative sponsored by the department of chemical engineering. It focuses on real-life practices and challenges of translating scientific discovery into commercial products. Its scope is limited in most circumstances to situations where some knowledge of chemical engineering or related disciplines, might prove to be particularly useful. The course primarily uses case studies of real-world new product development situations to simulate the managerial and technical challenges that confront new engineers in industry. (SP) Alexander

295Q. Advanced Topics in New Product Development. (3) Prerequisites: Graduate standing or consent of instructor. This course is a part of the product development initiative sponsored by the department of chemical engineering. The course builds on the coverage in 295P of real-life practices of translating scientific discovery into commercial products. We will cover a wide range of advanced product development concepts including technology road maps, decision analysis, six sigma, product portfolio optimization, and best practices for field project management. (SP) Alexander

295R. Applied Spectroscopy. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering; courses: quantum mechanics, linear vector spaces, and partial differential equations. This course will cover the various spectroscopies associated with the electromagnetic spectrum, including visible, ultraviolet, and infrared. Special emphasis is placed on application to research problems in applied and engineering sciences. Graduate researchers interested in systematic in situ process characterization, analysis, or display are best served by this course. Also listed as Applied Science and Technology C295R. (SP) Reimer

296. Special Study for Graduate Students in Chemical Engineering. (1-6) Course may be repeated for credit. Independent studies. Sections 1-4 and 11-25 to be graded on a satisfactory/unsatisfactory basis; sections 5-10 to be graded on a letter-grade basis. Prerequisites: Consent of instructor. Special laboratory and theoretical studies. (F,SP)

298. Seminar in Chemical Engineering. (1) Course may be repeated for credit. Prerequisites: Open to properly qualified graduate students with consent of instructor. Lectures, reports, and discussions on current research in chemical engineering. Section 2 to be organized independently and directed toward different topics. (F,SP)

299. Research in Chemical Engineering. (1-12) Course may be repeated for credit. Independent conferences. Prerequisites: Consent of instructor. Research. (F,SP)

602. Individual Studies for Graduate Students. (1- 8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Independent conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in Ph.D. program. Individual study in consultation with the major field advisor. Open to qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP)

Professional Courses

300. Professional Preparation: Supervised Teaching of Chemical Engineering. (2) Course may be repeated for credit. Individual conferences and participation in teaching activities. May be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing, appointment as a Graduate Student Instructor, or consent of instructor. Discussion, preparation and development of large scale laboratory experiments, course development, supervised practice teaching. (F,SP)

Chemistry (College of)

(For Chemistry and Chemical Engineering)

Office of the Dean: 420 Latimer Hall #1460
Undergraduate Majors Office: 420 Latimer Hall #1460,
(510) 642-3452
chemistry.berkeley.edu

Dean: Richard A. Mathies, Ph.D.
Assistant Deans: John Panetta, Ph.D.
Executive Associate Dean: Douglas Clark, Ph.D.
Assistant Dean, Undergraduate Affairs: Suzanne Pierce
Assistant Dean, Engineering and Facilities: Alexander Shtroumberg
Assistant Dean, College Relations: Jane Scheiber
Assistant Dean, Administration and Finance: Suzanne Pierce

The College of Chemistry comprises two departments, the Department of Chemical Engineering and the Department of Chemistry. Both disciplines impact major world problems. Discovering new sources of energy, recovering and utilizing dwindling mineral resources, developing new drugs and food supplies, understanding and protecting the environment, and synthesizing new products biochemically all depend centrally upon chemistry and chemical engineering. Students entering these disciplines will expand their careers in the middle of the action on these and other highly important areas of research.

Both departments in the College of Chemistry rank nationally and internationally among the most productive in their fields and both are renowned for their breadth of activity in a diverse range of subdisciplines and applications. At the same time, with only two departments, the college is a relatively small and comfortable place in which to work. Faculty members have many demands on their time, but students are able to develop close and satisfying contacts with them while in the college.

The college offers programs leading to the B.S., M.S., and Ph.D. degrees in both chemistry and...
Chemistry and the B.S. degree in chemical biology. The B.S. degree in chemistry is intended for students who are primarily interested in careers as professional chemists or want a thorough grounding in chemistry for preparation for professional or graduate school in chemistry and other disciplines. The B.S. degree in chemical engineering is intended as preparation for a career in chemical engineering and related disciplines. Chemical engineering majors may choose one of five concentrations: applied physical science, biotechnology, chemical processing, environmental technology, or materials science and technology. Also, two B.S. degree joint major programs (Chemical Engineering and Materials Science and Engineering, and Chemical Engineering and Nuclear Engineering) are available.

The College of Letters and Science offers a chemistry major leading to a B.A. degree through a curriculum with a greater proportion of courses in the humanities and social sciences than is included in the B.S. chemistry program. It is intended for students interested in careers in teaching, medicine, or other sciences in which a basic understanding of chemical processes is necessary.

Advanced undergraduate and graduate students have opportunities to conduct research in synthetic and inorganic chemistry, physical chemistry, organic chemistry, organometallic chemistry, chemical biology, solid-state and surface chemistry, catalysis, process design and control, product development, polymers, food processing, and biochemical engineering.

Recommended high school preparation for chemistry, chemical biology, or chemical engineering should include chemistry (one year); physics (one year); mathematics (four years, including trigonometry, intermediate algebra, and analytic geometry); and a foreign language (two or three years, preferably German, Russian, or French).

For more specific descriptions of the degree programs, see the Announcement of the College of Chemistry.

Organizational Units

Chemical Engineering
Department Office: 201 Gilman Hall #1462, 642-2291
Chair: Jeffrey A. Reimer, Ph.D.

Chemistry
Department Office: 419 Latimer Hall #1460, 642-9882
Chair: Michael A. Marletta, Ph.D.

Chemistry (Department of)
(College of Chemistry)

Department Office: 419 Latimer Hall #1460, (510) 642-9882
Undergraduate Majors Office: 420 Latimer Hall #1460, (510) 642-3452
chem.berkeley.edu
Chair: Michael A. Marletta, Ph.D.

University Professor
Gabor A. Somorjai, Ph.D. University of California, Berkeley. Physical chemistry
Yuan T. Lee, (Emeritus), Ph.D.

Professors
A. Paul Alvisatos, Ph.D. University of California, Berkeley. Physical chemistry
Richard A. Andersen, Ph.D. University of Wyoming. Inorganic chemistry
John Arnold, Ph.D. University of California, San Diego. Inorganic chemistry
Robert G. Bergman, Ph.D. University of Wisconsin. Organometallic chemistry
Carolyn H. Bertozzi, Ph.D. University of California, Berkeley. Chemistry
C. R. Bauschlicher Jr., Ph.D. University of California, Berkeley. Physical chemistry
Joseph Cerny, Ph.D. University of California, Berkeley. Nuclear chemistry
David Chandler, Ph.D. Harvard University. Theoretical chemistry
Ronald C. Cohen, Ph.D. University of California, Berkeley. Atmospheric chemistry
Jennifer Doudna, Ph.D. Harvard University. Chemical biology
Jonathan A. Ellman, Ph.D. Harvard University. Organic chemistry
Graham R. Fleming, Ph.D. University of London. Physical chemistry
Jean M. J. Frechet, Ph.D. State University of New York. Polymer chemistry
Charles B. Harris, Ph.D. Massachusetts Institute of Technology. Physical chemistry
Martin Head-Gordon, Ph.D. Carnegie-Mellon University. Theoretical chemistry
Sung-Hou Kim, Ph.D. University of Pittsburgh. Chemical biology
Judith P. Klinman, Ph.D. University of Pennsylvania. Chemical biology
John Kuriyan, Ph.D. Massachusetts Institute of Technology. Chemical biology
Stephen R. Leone, Ph.D. University of California, Berkeley. Physical chemistry
William A. Lester Jr., Ph.D. Catholic University of America. Organic chemistry
Michael A. Martelletta (Chair), Ph.D. University of California, San Francisco. Chemical biology
Richard A. Mathies (Dean), Ph.D. Cornell University. Chemical biology
William H. Miller, Ph.D. Harvard University. Theoretical chemistry
Luciano G. Moretto, Ph.D. University of Pavia. Nuclear chemistry
Daniel M. Neumark, Ph.D. University of California, Berkeley. Physical chemistry
Hein Nitsche, Ph.D. Freie Universität Berlin. Nuclear chemistry
Alexander Pines, Ph.D. Massachusetts Institute of Technology. Physical chemistry
Richard J. Saykally, Ph.D. University of Wisconsin-Madison. Physical chemistry
Kevin Shokat, Ph.D. University of California, Berkeley. Chemical biology
Angelica M. Stacy, Ph.D. Cornell University. Inorganic and physical chemistry
T. Don Tilley, Ph.D. University of California, Berkeley. Inorganic chemistry
Peter C. Vollhardt, Ph.D. University College London. Organic chemistry
David E. Wemmer, Ph.D. University of California, Berkeley. Chemical biology
K. Birgitta Whaley, Ph.D. University of Chicago. Theoretical chemistry
Jennifer Doudna, Ph.D. Harvard University. Chemical biology
Ronald C. Cohen, Ph.D. University of California, Berkeley. Atmospheric chemistry
Carlos J. Bustamante, Ph.D. University of California, Berkeley. Physical chemistry
Jeffrey R. Long, Ph.D. Harvard University. Inorganic chemistry
Marlon Madsen (Associate Dean), Ph.D. Southern Illinois University. Electrochemistry
Robert G. Bergman, Ph.D. University of Wisconsin-Madison. Physical chemistry
Michael A. Marletta (Chair), Ph.D. University of California, San Francisco. Chemical biology
David L. Moore, Ph.D. University of California, Berkeley. Physical chemistry
Robert C. O’Connell, Ph.D. Harvard University. Biochemistry
Philip L. Simmerman, Ph.D. University of California, Berkeley. Physical chemistry
Kevin Shokat, Ph.D. University of California, Berkeley. Chemical biology
David L. Moore, Ph.D. University of California, Berkeley. Physical chemistry
Robert G. Bergman, Ph.D. University of Wisconsin-Madison. Physical chemistry
Michael A. Marletta (Chair), Ph.D. University of California, San Francisco. Chemical biology

Associate Professors
Kristie A. Boering, Ph.D. Stanford University. Atmospheric chemistry
Jamie Doudna, Ph.D. Yale University. Chemical biology
Matthew L. Francis, Ph.D. Harvard University. Organic chemistry
Jay T. Groves, Ph.D. Stanford University. Chemical biology
F. Dean Toles, Ph.D. Stanford University. Organic chemistry

Assistant Professors
Christopher J. Chang, Ph.D. Massachusetts Institute of Technology. Bioorganic, inorganic, and organic chemistry
Michelle C. Chang, Ph.D. Massachusetts Institute of Technology. Bioorganic, inorganic, and synthetic chemistry
Phillip L. Jesser, Ph.D. University of California, Berkeley. Theoretical chemistry
Bryan A. Krantz, Ph.D. University of Chicago. Chemical biology
Richard Landy, Ph.D. Princeton University. Organic chemistry
Michael D. Mayor, Ph.D. Harvard University. Physical chemistry
Ting Xu, Ph.D. University of Massachusetts. Polymers, biomaterials, and materials chemistry
Haw Yang, Ph.D. University of California, Berkeley. Physical chemistry

Lecturers
Michelle Doushey, Ph.D. University of Minnesota. Catalysis, organic chemistry
K. Birgitta Whaley, Ph.D. University of Chicago. Theoretical chemistry
Churumi Lui, Ph.D. Texas A&M University. Organic chemistry
Steven Pedersen, Ph.D. Massachusetts Institute of Technology. Computational and organic chemistry
Neil L. Viernes, Ph.D. University of Illinois. Organic chemistry

Chemistry Major in the College of Chemistry (B.S. Degree)

The requirements for a B.S. degree in the College of Chemistry, with a chemistry major, are: a total of 120 semester units; Mathematics 1A, 1B, 53, 54; Physics 7A, 7B; Chemistry 4A, 4B, 104A, 104B, 112A, 112B, 120A, 120B, 125, and a choice of 105, 108, 115, or 146. In addition to these specified courses, the B.S. chemistry major consists of 15 units of advanced study in chemistry and related fields, including at least one lecture course in chemistry. These courses permit the student to emphasize chemistry in areas of personal interest or to specialize in some related field, such as physics, biology, geology, mathematics, materials science, nuclear science, or to complete preprofessional requirements. In addition to these 15 units of advanced scientific courses, a portion of the 15 units of breadth electives (see below) can be used for coherent programs in interdisciplinary areas.

Chemistry majors who choose a concentration in materials chemistry must complete Chemistry C150, two chemistry laboratory courses (105 or 125, plus 108 or 115), and 10 units of upper division electives. These courses are taken in place of Chemistry 125; a choice of Chemistry 105, 108, 115, or 146; and 15 units of advanced study in chemistry and related fields.

The following requirements must also be satisfied: Entry-Level Writing: American History and Institutions; American Cultures; second-semester foreign language course or equivalent; and a program of 15 units in English composition (English R1A and R1B or equivalent), humanities, and social sciences to fulfill the breadth requirement. See the Announcement of the College of Chemistry for additional information about the chemistry program.

Chemical Biology Major

The requirements for a B.S. degree in chemical biology are as follows: a total of 120 semester units; Mathematics 1A, 1B, 53, 54; Physics 7A, 7B (8A, 8B may be taken in place of 7A, 7B, but 7A, 7B are recommended); Biology 1A and 1AL; Chemistry 4A, 4B, 103, 112A, 112B, 120A, 120B,
Students are encouraged to take individual undergraduate research in collaboration with one of the faculty during their junior or senior year.

Undergraduate Research

Intercollegiate Transfers

Transfer applicants are expected to complete, at a minimum, courses equivalent to Chemistry 1A-1B, Mathematics 1A-1B, Physics 7A (Physics 7A or 8A for chemical biology majors), English R1A-R1B. Additional courses toward the major before transfer. In addition, completion of additional chemistry, mathematics, calculus-based physics, and some biology is encouraged. Chemistry and chemical biology majors who transfer without having covered quantitative analysis are required to take a quantitative analysis course after transfer. Note: Coursework taken the summer before enrollment at Berkeley is not considered in the selection of applicants.

Chemistry Major in the College of Letters and Science (B.A. Degree)


Honors at Graduation for a B.A. Degree

To be eligible to receive honors in chemistry at graduation, candidates for the B.A. degree must: (1) complete at least 12 units in upper division courses in the major and at least 3.3 overall at graduation, candidates for the B.A. degree must: (2) complete at least 3 units of Chemistry H194 or another advanced chemistry course as approved by the department.

Field Major in Physical Sciences

Students interested in this major should see Physical Science for the description of the major program.

Chemistry Minor in the College of Chemistry

Note: The chemistry minor is not available to chemical biology majors.

A minor in chemistry will be awarded to students who have successfully completed one year of organic chemistry (3A plus 3AL and 3B plus 3BL, or 112A-112B or equivalent), one year of physical chemistry taken at Berkeley (120A-120B, or C130 and 130B), and two additional upper division chemistry courses at Berkeley (101A or 101B for students who have taken the equivalent of courses numbered 190-199). All of the courses taken for the minor must be for a letter grade. Students must achieve at least a 2.0 GPA in the courses taken for the minor for each of the following: upper division courses, courses taken at Berkeley, and organic chemistry courses if taken at another institution and accepted by the College of Chemistry as equivalent to 3A plus 3AL, 3B plus 3BL, 112A or 112B. For the minor to be awarded, students must submit a notification of completion of the minor at 420 Latimer Hall.

Note: Consult with your college or school for information on rules regarding overlap of courses between majors and minors.

California Teaching Credential

For information concerning the California Teaching Credential (Single or Multiple Subject), see the Graduate School of Education’s Guide to Graduate Studies at gse.berkeley.edu/admin/sas/requirements.html.

Graduate Programs

The Department of Chemistry offers a program of graduate study leading to a Ph.D. degree in chemistry. The program provides advanced training in the research methods and concepts in chemistry. The training is intellectually focused, but at the same time offers wide opportunities for disciplinary specialization. The range of disciplines within the Department of Chemistry is described on the departmental web site at chem.berkeley.edu/grad, including, but not limited to, physical, organic, inorganic, and biophysical chemistry. Students working for the Ph.D. will be required to serve as a graduate student instructor for three semesters during their time in the program. Students interested in graduate study will find more information concerning the graduate program and admissions requirements on the Department of Chemistry web site at chem.berkeley.edu/grad_info.

Lower Division Courses

1A. General Chemistry. (4) Students will receive no credit for 1A after taking 4A. Three hours of lecture and four hours of laboratory per week. Prerequisites: High school chemistry recommended. Stoichiometry of chemical reactions, quantum mechanical description of atoms, the elements and periodic table, chemical bonding, real and ideal gases, thermochemistry, introduction to the practice of methods used in the organic chemistry laboratory. (F,SP)

1B. General Chemistry. (4) Students will receive no credit for 1B after taking 4B. Two hours of lecture and four hours of laboratory per week. Prerequisites: 1A or a score of 3, 4, or 5 on the Chemistry AP Test. Introduction to chemical kinetics, electrochemistry, properties of the states of matter, binary mixtures, thermodynamic efficiency and reaction, solution of chemical change, quantum mechanical description of bonding introduction to spectroscopy. Special topics: Research topics in modern chemistry and biochemistry, chemical engineering. (SP)

3A. Chemical Structure and Reactivity. (3) Students will receive no credit for 3A after taking 112A. Three hours of lecture per week. Prerequisites: 1A with a grade of C- or higher, or a score of 4 or 5 on the Chemistry AP Test. Introduction to organic chemical structures and chemical reactivity. This organic chemistry of alkanes, alkyl halides, alcohols, amines, alkenes, and organometallics. (F,SP)

3AL. Organic Chemistry Laboratory. (2) Students will receive no credit for 3AL after taking 112A. One hour of lecture and four hours of laboratory per week. Prerequisites: 1A with a grade of C- or higher, or a score of 4 or 5 on the Chemistry AP Test; 3A may be taken current concurrently). Introduction to the theory and practice of methods used in the organic chemistry laboratory. An emphasis is placed on the separation and purification of organic compounds. Techniques covered will include extraction, distillation, sublimation, recrystallization, and chromatography. Detailed discussions and experiments on a variety of magnetic resonance spectroscopy will be included. (F,SP)

3B. Chemical Structure and Reactivity. (3) Students will receive no credit for 3B after taking 112B. Three hours of lecture per week. Prerequisites: 3A including a grade of C- or higher, or a score of 4 or 5 on the Chemistry AP Test. Laboratory emphasis on the separation and purification of aromatic chemistry, carbonyl compounds, carbohydrates, amines, carboxylic acids, amino acids, peptides, proteins, and nucleic acid chemistry. Ultraviolet spectrometry and mass spectrometry will be introduced. (F,SP)

3BL. Organic Chemistry Laboratory. (2) Students will receive no credit for 3BL after taking 112B. One hour of lecture and four hours of laboratory per week. Prerequisites: 3AL, 3B (may be taken concurrently). The applications and purification methods will be explored. Natural product chemistry will be introduced. Advanced spectroscopic methods including infrared, ultraviolet, and nuclear magnetic resonance spectroscopy and mass spectrometry will be used to analyze products prepared and/or isolated. Qualitative analysis of organic compounds will be covered. (F,SP)

4A-4B. General Chemistry and Quantitative Analysis. (4,4) Students will receive no credit for 4A after taking 1A. Students will receive no credit for 4B after taking 1B. Students will receive 3 units of credit for 4B after taking 15. Three hours of lecture and four hours of laboratory per week. Prerequisites: High school chemistry; calculus (may be taken concurrently). This series is intended for majors in physical and biological sciences and in engineering. It presents the foundation principles of chemistry, including stoichiometry, ideal gases, acids, bases, acid-base and solubility equilibria, oxidation-reduction reactions, thermochemistry, entropy, nuclear chemistry and radioactivity, the atoms and elements, the periodic table, quantum theory, chemical bonding, molecular kinet- ics, and descriptive chemistry. Examples and applications will be drawn from diverse areas of special interest such as atmospheric, environmental, material, polymer and composite chemistry, and biochemistry. Laboratory emphasizes quantitative work. Equivalent to 1A-1B plus 15 as prerequisite for further courses in chemistry. (F)

15. Analytical and Bioanalytical Chemistry. (3) Students will receive 2 units credit for 15 after taking 4B. Two hours of lecture and four hours of laboratory per week. Prerequisites: 1A or equivalent. An introduction to analytical and bioanalytical chemistry including background in statistical analysis of data, acid-base equilibria, electroanalytical potentiometry, spectrometric, and chromatographic methods of analysis and some advanced topics in bioanalytical chemistry such as micro-fluidics, bioassay techniques, and enzymatic reactions. (SP)

2A. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

49. Supplementary Work in Lower Division Chemistry. (1-4) Course may be repeated for credit. Meetings are to be arranged. Students with partial credit in lower division chemistry courses may, with consent of instructor, complete the credit under this heading. (F,SP)

104. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across.
of instrument design and capabilities, as well as real-world problem solving with an emphasis on bioanalytical, environmental, and forensic applications. The topics will be based on hand-on laboratory work, emphasizing independent projects involving real-life samples and problem solving. (F,SP)

108. Inorganic Synthesis and Reactions. (4) Two hours of lecture and eight hours of laboratory per week. Prerequisites: 4B or 15, 104A with grade of C- or higher, one year of chemistry, and one year of physics. The preparation of inorganic compounds using vacuum line, air-and moisture-exclusion, electrochemical, high-pressure, and other synthetic techniques. Kinetic and mechanistic studies of inorganic compounds. (F,SP)

112A-112B. Organic Chemistry. (5) Students will receive no credit for 112A after taking 3A and 3AL. Three hours of lecture, one hour of laboratory discussion, and five hours of laboratory per week. Prerequisites: 112A: 1B or 4B with grade of C- or higher. For students majoring in chemistry or a closely related field such as chemical engineering or molecular and cell biology. A study of all aspects of fundamental organic chemistry, including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds. The course includes theoretical aspects of inorganic and analytical syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive and intensive than 3A-3B and includes a greater emphasis on reaction mechanisms and multistep syntheses. 112A (F); 112B (SP)

113. Advanced Mechanistic Organic Chemistry. (3) Three hours of lecture per week. Prerequisites: 3B or 112B with a minimum grade of B- or consent of instructor. Advanced topics in mechanistic and physical organic chemistry, typically including kinetic reactions, reactive intermediates, substitution reactions, linear free energy relationships, orbital interactions and orbital symmetry control of reactions, isotope effects, and photochemistry. (SP)

114. Advanced Synthetic Organic Chemistry. (3) Three hours of lecture per week. Prerequisites: 3B or 112B with a minimum grade of B- or consent of instructor. Advanced topics in synthetic organic chemistry with a focus on selectivity. Topics include reductons, oxidations, enolate chemistry and the aldol reaction, reactions of non-stabilized anions, olefination reactions, pericyclic reactions and application to the synthesis of complex structures. (SP)

115. Organic Chemistry—Advanced Laboratory Methods. (4) One and one-half hours of laboratory per week. Prerequisites: 112B with a grade of C- or higher; Advanced synthetic methods, chemical and spectroscopic structural methods, designed to reinforce 114A. (may be taken concurrently). (SP)

120A. Physical Chemistry. (3) Students will receive 2 units of credit for 120A after taking 130B. Three hours of lecture per week. Prerequisites: 4B or equivalent; Mathematics 53; Physics 7B or 8B; Math 54 (may be taken concurrently). Kinetic, potential, and total energy principles, quantum mechanics, quantum chemistry and structure of biomolecules (proteins, nucleic acids). (SP)

120B. Physical Chemistry. (3) Students will receive 2 units of credit for 120B after taking C130 or Molecular and Cellular Biology C100A. Three hours of lecture per week. Prerequisites: 4B or equivalent; Mathematics 53; Physics 7B or 8B; Math 54 (may be taken concurrently). Statistical mechanics, thermodynamics, and statistical mechanics, thermodynamics, and quantum mechanics. Course will be divided (fall semester) into a section for chemistry majors and one for chemical engineering majors, both meeting at the same time, covering topics of interest to each group relating to molecules and chemical bonding, electrical properties, intermolecular interactions, and elemental and molecular properties. (SP)

125. Physical Chemistry Laboratory. (3) Students will receive 1 unit of credit for 125 after taking C182 or Earth and Planetary Science C182. Consent of instructor is required to enroll in this course. Students must have completed one-quarter of EPS C182. One hour of lecture and five hours of laboratory per week. Prerequisites: Two of the following: 120A, 120B, C130, or 130B with grades of C- or higher (one of which may be taken concurrently). Experiments in thermodynamics, kinetics, molecular structure, and general physical chemistry. (F)

C130. Biophysical Chemistry: Physical Principles and the Molecules of Life. (4) Students will receive 3 units of credit for C130 after taking 120B. Three hours of lecture and one hour of discussion per week. Prerequisites: 3A or 112A, Mathematics 1A, Biology 1A and 1AL; 3B or 112B recommended. Thermodynamic and kinetic concepts applied to understanding the chemistry and structure of biomolecules (proteins, DNA, and RNA). Molecular distributions, reaction kinetics, enzyme kinetics. Bioenergetics, energy transduction, and motor proteins. Electrochemical potential, pH, protein phase transitions, and macromolecular assemblies. (F,SP)

130B. Biophysical Chemistry. (3) Students will receive no credit for 130B after taking both 120A and 120B. Students will receive 2 units of credit for 130B after taking either 120A or 120B. Two hours of lecture and one hour of discussion per week. Prerequisites: C130 or Molecular and Cell Biology C100A, or consent of instructor. The weekly one-hour discussion is for problem solving and the application of calculus in physical chemistry. Molecular structure, intermolecular forces and interactions, biomolecular spectroscopy, high-resolution structure determinations. (SP)

135. Chemical Biology. (3) Three hours of lecture per week. Prerequisites: 3B or 112B, Biology 1A or consent of instructor. One-quarter introduction to biochemistry, aimed toward chemistry majors. (F,SP)

143. Nuclear Chemistry. (2) Two hours of lecture per week. Prerequisites: Physics 7B or equivalent. Radioactivity, fission, nuclear models and reactions, nuclear processes in nature. Computer methods will be introduced. (F)

146. Chemical Methods in Nuclear Technology. (3) One and one-half hours of lecture and four and one-half hours of laboratory per week. Prerequisites: 4B or 15; 143 is recommended. Experimental illustration of the interrelation of nuclear science and technology; fission process, chemistry of fission fragments, chemical effects of nuclear transformation; application of radioactivity to study of chemical problems; neutron activation analysis. (SP)

149. Supplementary Work in Upper Division Chemistry. (1-4) Course may be repeated for credit. Meetings to be arranged. Students with partial credit in upper division chemistry courses may, with consent of instructor, complete the credit under this heading. (F,SP)

C150. Introduction to Materials Chemistry. (3) Three hours of lecture per week. Prerequisites: 104B is recommended. The application of basic chemical principles to problems in materials discovery, design, and characterization will be discussed. Topics covered will include inorganic solids, nanoscale materials, polymers, and biological materials, with specific focus on the ways in which atomic-level interactions dictate the bulk properties of matter. (F,SP) as Materials Science and Engineering C150. (SP)

C170L. Biochemical Engineering Laboratory. (3) Six hours of laboratory and one hour of lecture per week. Prerequisites: Chemical Engineering 170A (may be taken concurrently) or consent of instructor. Labo-
198. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. One hour of lecture per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Supervised experience in off-campus organizations relevant to specific aspects and applications of chemistry. May be taken on a passed/not passed basis. Prerequisites: Completion of 60 units of undergraduate study and in good standing. Group study of selected topics. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Nonlaboratory research study. May be taken on a passed/not passed basis. Enrollment is restricted by regulations listed in this catalog. (F,SP)

Graduate Courses

200. Chemistry Fundamentals. (1) Three hours of lecture per week for five weeks. Prerequisites: Graduate standing or consent of instructor. Review of bonding, structure, MO theory, thermodynamics, and kinetics. (F)

201. Fundamentals of Inorganic Chemistry. (1) Three hours of lecture per week for five weeks. Prerequisites: Graduate standing or consent of instructor. Basic topics in inorganic chemistry, including reactions of the d-transition metals and their compounds. (SP)

202. Structure Analysis by X-ray Diffraction. (4) Two hours of lecture and eight hours of laboratory per week. Prerequisites: Consent of instructor. The theory and practical application of single-crystal X-ray diffraction. (SP)

220A. Thermodynamics and Statistical Mechanics. (3) Three hours of lecture per week. Prerequisites: 220A. Principles of statistical mechanics and applications to complex systems. (F)

221A. Advanced Quantum Mechanics. (3) Three hours of lecture per week. Prerequisites: 220B and 220C or consent of instructor. Advanced quantum mechanics. (SP)

221B. Advanced Quantum Mechanics. (3) Three hours of lecture per week. Prerequisites: 221A. Time dependence, interaction of matter with radiation, scattering theory. Molecular and many-body quantum mechanics. (F)

222. Spectroscopy. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. This course presents a survey of experimental and theoretical methods of spectroscopy, and group theory as used in modern chemical research. The course will include experimental methods, classical and quantum descriptions of the interaction of radiation and matter. Qualitative and quantitative aspects of the subject are illustrated with examples including multiplet and nonmultiplet spectroscopies to the study of molecular structure and dynamics and to quantitative analysis. This course is offered jointly with 122. (SP)

223A. Chemical Kinetics. (3) Three hours of lecture per week. Prerequisites: 220A (may be taken concurrently). Deduction of mechanisms of complex reactions. Collision and transition state theory. Potential energy surfaces. Unimolecular reaction rate theory. Molecular beam scattering studies. (F)


230. Protein Chemistry, Enzymology, and Bioorganic Chemistry. (2) At the instructor’s discretion, this course may be taught over a 10 week period with three hours of lecture per week or over a 15 week period with two hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. The topics covered will be chosen from the following: protein structure; protein-protein interactions; enzyme kinetics and mechanism; enzyme design. Intended for graduate students in chemistry, biochemistry, and molecular and cell biology. Also listed as Molecular and Cell Biology C214. (SP)

243. Advanced Nuclear Structure and Reactions. (3) Three hours of lecture per week. Prerequisites: 143 or equivalent and introductory quantum mechanics. Selected topics on nuclear structure and nuclear reactions. (F)

250A. Introduction to Bonding Theory. (1) Three hours of lecture per week for five weeks. Prerequisites: 250A or 201 or consent of instructor and background in the use of matrices and linear algebra. An introduction to group theory, symmetry, and representations as applied to chemical bonding. (F)

250B. Inorganic Spectroscopy. (1) Three hours of lecture per week for four weeks. Prerequisites: 250A or consent of instructor. The theory of vibrational analysis and spectroscopy as applied to inorganic compounds. (SP)

251A. Coordination Chemistry I (1) Three hours of lecture per week for five weeks. Prerequisites: 250A or consent of instructor. Structure and bonding, synthesis, and reactions of the d-transition metals and their compounds. (F)

251B. Coordination Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 251A or consent of instructor. Synthesis, structure analysis, and reactivity patterns in terms of symmetry orbitals. (SP)

252A. Organometallic Chemistry I. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. An introduction to organometallic chemistry, focusing on structure, bonding, and reactivity. (F)

252B. Organometallic Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 252A or consent of instructor. Applications of organometallic chemistry in synthesis with an emphasis on catalysis. (F)

253A. Materials Chemistry I. 1 Three hours of lecture per week for five weeks. Prerequisites: 200 or 201, and 250A, or consent of instructor. Introduction to the descriptive crystal chemistry and electronic band structure of extended solids. (SP)

253B. Materials Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 253A or consent of instructor. General solid state synthesis and characterization techniques as well as a survey of important physical phenomena, including optical, electrical, and magnetic properties. (SP)

253C. Materials Chemistry III. (1) Three hours of lecture per week for five weeks. Prerequisites: 253A or consent of instructor. Introduction to surface catalysis, organic solids, and nanoscience. Thermodynamics and kinetics of solid state diffusion and reaction will be covered. (SP)

254. Bioinorganic Chemistry. (1) Three hours of lecture per week for five weeks. A survey of the roles of metals in biology, taught as a tutorial involving class presentations. (SP)

256. Electrochemical Methods. (1) Three hours of lecture per week for five weeks. The effect of structure and kinetics on the application of voltamograms and the use of cyclic voltammetry to probe the thermodynamics, kinetics, and mechanisms of electrochemical reactions. (SP)

260. Reaction Mechanisms. (2) Three hours of lecture and in-class discussion and problem solving and
one week of computer laboratory. 

Prerequisites: 200 or 201 or consent of instructor. Formerly 260A-260B. Advanced methods for studying organic reaction mechanisms, kinetic isotope effects, behavior of reactive intermediates, chain reactions, concerted reactions, molecular orbital theory and aromaticity, solvent and substituent effects, linear free energy relationships, photochemistry. (F)

261A. Organic Reactions I. (1) Three hours of lecture per week for five weeks. Prerequisites: 261A or 201 or consent of instructor. Features of the reactions that comprise the vocabulary of synthetic organic chemistry. (F)

261B. Organic Reaction II. (1) Three hours of lecture per week for five weeks. Prerequisites: 261A or consent of instructor. More reactions that are useful to the practice of synthetic organic chemistry. (F)

261C. Organic Reactions III. (1) Three hours of lecture per week for five weeks. Prerequisites: 261B or consent of instructor. This course will consider further reactions with an emphasis on pericyclic reactions such as cycloadditions, electrocyclizations, and sigmatropic rearrangements. (SP)

262. Metals in Organic Synthesis. (1) Three hours of lecture per week for five weeks. Prerequisites: 261B or consent of instructor. Transition metal-mediated reactions and their synthetic potential and applications. (F)

263A. Synthetic Design I. (1) Three hours of lecture per week for five weeks. Prerequisites: 262 or consent of instructor. This course will describe the application of modern reactions to the total synthesis of complex targets in organic chemistry. Natural products, such as alkaloids, terpenes, or polypropionates, as well as theoretically interesting “non-natural” molecules will be covered. (SP)

263B. Synthetic Design II. (1) Three hours of lecture per week for five weeks. Prerequisites: 263A or consent of instructor. The principles of retrosynthetic analysis will be laid down and the chemistry of protecting groups will be discussed. Special attention will be given to the automated synthesis of biopolymers such as carbohydrates, peptides, and proteins, as well as nucleic acids. (SP)

265. Nuclear Magnetic Resonance Theory and Application. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. Basic principles of nuclear magnetic resonance spectroscopy and a survey of its applications to chemical research. (SP)

266. Mass Spectrometry. (1) Students will receive no credit for 266 after taking 268. Three hours of lecture per week for five weeks. Prerequisites: 260 or 201 or consent of instructor. Basic mass spectrometric ionization techniques and analyzers, as well as simple fragmentation mechanisms for organic molecules; methods for analyzing organic and inorganic samples, along with an opportunity to be trained and checked out on several open-access mass spectrometers; in-depth instruction on the use of mass spectrometry for the analysis of biomolecules such as proteins, peptides, carbohydrates, lipids, (SP)

268. Mass Spectrometry. (2) Students will receive 1 unit of credit for 268 after taking 266. Three hours of lecture for 10 weeks. Prerequisites: Graduate standing or consent of instructor. Principles, instrumentation, and application in mass spectrometry, including ionization methods, mass analyzers, spectral interpretation, multidimensional methods (GC/MS, HPLC/MS, MS/MS), with emphasis on small organic molecules and bioanalytical applications (peptides, proteins, nucleic acids, carbohydrates, noncovalent complexes); this will include the opportunity to be trained and checked out on several open-access mass spectrometers. (SP)

270A. Advanced Biophysical Chemistry I. (1) Two hours of lecture for seven and one-half weeks. Prerequisites: 200 or consent of instructor. Underlying principles and applications of methods for biophysical analysis of biological macromolecules. (F)

270B. Advanced Biophysical Chemistry II. (1) Two hours of lecture for seven and one-half weeks. Prerequisites: 270A or consent of instructor. More sophisticated applications of methods for biophysical analysis of biological macromolecules. (F)

271A. Chemical Biology I: Structure, Synthesis, and Function of Biomolecules. (1) Three hours of lecture per week for five weeks. Prerequisites: 260 or consent of instructor. This course will present the structure of proteins, nucleic acids, and oligosaccharides from the perspective of organic chemistry. Mechanistic perspectives of enzymes and intermediates of these molecules will also be presented. (SP)

271B. Chemical Biology II: Enzyme Reaction Mechanisms. (1) Three hours of lecture per week for five weeks. Prerequisites: 271A or consent of instructor. This course will focus on the principles of enzyme catalysis. The course will begin with an introduction to the general concepts of enzyme catalysis which will be followed by detailed examples that will examine the chemistry behind the reactions and the three-dimensional structures that carry out the transformations. (SP)

271C. Chemical Biology III: Contemporary Topics in Chemical Biology. (1) Three hours of lecture per week for five weeks. Prerequisites: 271B or consent of instructor. This course will build on the principles discussed in Chemical Biology I and II. The focus will consist of case studies where rigorous chemical approaches have been brought to bear on biological questions. Potential subject areas will include signal transduction, photosynthesis, immunology, virology, and cancer. For each topic, the appropriate biochemical techniques will be emphasized. Also listed as Molecular and Cell Biology C212B. (SP)

272A. Bio X-ray I. (1) Three hours of lecture per week for five weeks. Prerequisites: 272A or consent of instructor. This course will build on the principles discussed in Bio X-ray I. Three hours of lecture per week. Prerequisites: 272A or consent of instructor. More sophisticated aspects of the applications of X-ray crystallography to biomacromolecules (SP)

272B. Bio X-ray II. (1) Three hours of lecture per week for five weeks. Prerequisites: 272A or consent of instructor. More sophisticated aspects of the applications of X-ray crystallography to biomacromolecules (SP)

273A. Bio NMR I. (1) Two hours of lecture for seven and one-half weeks. Prerequisites: 270A-270B or consent of instructor. Fundamentals of multidimensional NMR spectroscopy (including use of the density matrix for analysis of spin response to pulse sequences) and applications of multidimensional NMR in probing structure, interactions, and dynamics of biological molecules will be described. (SP)

273B. Bio NMR II. (1) Two hours of lecture for seven and one-half weeks. Prerequisites: 273A. Triple resonance methods for determination of protein and nucleic acid resonance assignments, and for generation of structural restraints (distances, angles, H-bonds, etc.). Methods for calculating biomolecular structures from NMR data and the quality of such structures will be discussed. (F,SP)

295. Special Topics. (1-3) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. The series of lecture series on topics of current interest. Recently offered topics: natural products synthesis, molecular dynamics, statistical mechanics, molecular spectroscopy, structural bioinformatics, organic polymers, electronic structure of molecules and bio-organic chemistry. (F,SP)

298. Seminars for Graduate Students. (1-3) Course may be repeated for credit. Seminars. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. In addition to the weekly Graduate Research Seminar series, there are special seminars on specific fields of research. Seminars will be announced at the beginning of each semester. (F,SP)

299. Research for Graduate Students. (1) Course may be repeated for credit. May be repeated for credit. May not be used for the Ph.D. degree. May not be used for unit or residence requirements for the doctoral degree. (F,SP)

Professional Courses

300. Professional Preparation: Supervised Teaching in Chemistry. (2) Course may be repeated for credit. Prerequisites: Graduate standing and appointment as a graduate student instructor. Discussion, curriculum development, class observation, and practice teaching in chemistry. (F,SP)

301. Pre-High School Chemistry Classroom Immersion. (1) Course may be repeated for credit. One hour of lecture per week (average). Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Provides training and opportunity for graduate students to prepare lessons in collaboration with members of the staff. (SP)

302. Undergraduate Lab Instruction. (2) Course may be repeated once for credit. One hour of lecture and four hours of tutorial per week. Must be taken on a pass/fail basis. Prerequisites: Graduate standing or consent of instructor: 1A-1B with grade B- or higher. Tutoring of students in 1A-1B laboratory. Instructor arranges three hours of tutoring per week and offers one hour of course work. (F,SP)

308. Undergraduate Chemistry Instruction. (2) Course may be repeated once for credit. One hour of lecture and five hours of tutoring per week. Must
be taken on a passed/not passed basis. Requirements: Sophomore standing; 1A-B with grade B- or higher. Formerly 301. Tutoring of students in 1A-B. Students are offered in a weekly meeting, tutoring methods at the Student Learning Center and attend 1A-B lectures. (F,SP)

301C. Chemistry 3 Lab Assistant. (2) Course may be repeated once for credit. One hour of preparation meeting, four hours of instruction in the laboratory, and one hour of laboratory experiment preparation. Must be taken on a passed/not passed basis. Prerequisites: Sophomore standing and consent of instructor; completion of 3B with grade B or higher. Undergraduate organic lab assistants help in the teaching of the 3A-3B laboratories. Each week students attend a laboratory preparation meeting for one hour, assist in the laboratory section for four hours, and one hour of the development of experiments for one hour. (F,SP)

301T. Undergraduate Preparation for Teaching or Instruction in Teaching. (2) Course may be repeated for credit. One hour of lecture and three or four hours of tutoring per week. Must be taken on a passed/not passed basis. Prerequisites: Sophomore standing and consent of instructor. Tutoring of students in the College of Chemistry Scholars Program who are enrolled in 1A-B or 1A2A-112B. Students attend a weekly meeting with instructors. (F,SP)

Chicano Studies (College of Letters and Science)

Program Office: 506 Barrows Hall, (510) 643-0796
ethnicstudies.berkeley.edu
Chair: Beatriz Manz, Ph.D.
Professors
Beatriz Manz, Ph.D.
Jose D. Saldivar, Ph.D.
Norma Alcaron (Emerita), Ph.D.
Carlos Munoz Jr. (Emeritus), Ph.D.
Associate Professors
Ramón Gómez, Ph.D.
Nelson Maldonado-Torres, Ph.D.
Diana Montejano, Ph.D.
Laura Perez, Ph.D.
Alex M. Saragoza, Ph.D.
Margarette Melville (Emerita), Ph.D.
Assistant Adjunct Professor
Raymond Telles, M.F.A.

Undergraduate Major Adviser: Ms. Jimenez-Olvera

Undergraduate Program

The Chicano studies major offers an interdisciplinary curriculum of academic study that critically examines the historical and contemporary experiences of people of Mexican descent in the context of American society and institutions. Moreover, in light of continuous immigration from Mexico, and now Central America, the Chicano studies major also includes the study of particular aspects of Mexican history, culture and politics as they bear upon the Chicano community, past and present. Emphasis is given in the major to the student developing a broad knowledge of the Chicano experience. Thus, the major stresses the analysis of the interrelationships in the historical background, cultural patterns, and artistic expression of the Chicano community in order to acquire a well-rounded, in-depth understanding of the contemporary interface between Chicanos and American society. In this connection, the major strives to incorporate various disciplines in its approach, such as political science, sociology, anthropology, history, literary criticism, and art. Through the interdisciplinary nature of our curriculum, the major is designed to help in the development of students in the world of work and for a wide range of advanced graduate work and/or professional training in various fields.

Major Requirements

Lower Division. Ethnic Studies 10AC and 11AC. Completion of two courses from Chicano Studies 20, 40, 50, or 70. (F,SP)

Upper Division. Ethnic Studies 101A, 101B, and 103; completion of four elective courses from Chicano Studies 101, 110, 119, 133, 135, 141, 142, 143, 145, 148, 149, 150A, 150B, 159, 161, 172, 174, 176, 179, 180, or an approved course from another department; Chicano Studies 197 (4 units maximum).

Honors Program. The Chicano Studies program provides an option leading to the A.B. degree with honors. Students must have junior standing; a 3.3 University GPA; and a 3.3 GPA in the major. The honors thesis consists of a 6-unit research project. The faculty will establish criteria and grade the project. For more information, see the Chicano Studies adviser in 532 Barrows Hall.

The Minor in Chicano Studies

Requirements. Completion of five courses from Chicano Studies 101, 110, 130, 133, 135, 141, 142, 143, 145, 148, 149, 150A, 150B, 159, 161, 172, 174, 176, 179, 180. Students may also use one approved course from another department or EAP.

Lower Division Courses

6A. Chicano Spanish. (4) Four hours of lecture per week. Designed and systematically structured to develop confidence in the Chicano student’s ability to communicate effectively in Spanish through an emphasis on class discussions, weekly compositions, individual and group presentations, lectures, movies and selected readings. Newly acquired confidence in and facility with the Spanish language will be continually reinforced through class presentation, written and oral reports and researched topics. (F) Prara

6B. Chicano Spanish. (4) Four hours of lecture per week. Prerequisites: 6A. To expand upon the material and concepts covered in 6A. This course is designed to introduce the Chicano student to representative Spanish authors. The analysis of a variety of their writings. (SP) Prara

20. Introduction to Chicano Culture. (3) Three hours of lecture per week. An introduction to the cultural life of Chicanos with its regional differences. Key themes are the symbols and cultural norms created by the historical interaction between Chicanos and American society as expressed in literature, art, music, and folklore. Attention will also be given to change and continuity in Chicano cultural norms on the basis of historical events. (F,SP)

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Two hours of discussion per week. Sections 1-2 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

40. Introduction to Chicano Literature in English. (4) Four hours of lecture per week. The course will introduce students to modern Chicano literature written in English, and will provide a background for understanding more specialized courses in the area. (SP) Perez

50. Introduction to Chicano History. (4) Three hours of lecture per week. A general overview of the Chicano historical experience in the U.S. (F) Saragoza

70. Latino Politics. (4) Three hours of lecture and one hour of discussion per week. A critical analysis of the Latino political experience in the U.S. The course compares and contrasts the ideologies, political organizations, and political leadership in the Mexican American, Cuban-American, Puerto Rican, and Central American communities. The contemporary issues confronting Latinos are critically examined. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for one to five weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Consent of instructor. Open to freshmen and sophomores only. Supervised independent field experience in the community relevant to specific aspects of Chicano studies. (F,SP) Staff

97. Field Study in Chicano Studies. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of fieldwork per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Open to freshmen and sophomores only. Supervised independent field experience in the community relevant to specific aspects of Chicano studies. (F,SP) Staff

98. Supervised Group Study. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of group study per semester per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Open to freshmen and sophomores only. Group study of selected topics which will vary from semester to semester. (F,SP) Staff

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Three to twelve hours of tutorial per week. Must be taken on a passed/not passed basis. Prerequisites: Majors and minors only. A critical assessment of paradigms and intellectual traditions in Chicano Studies. (F,SP) Staff

Upper Division Courses

101. Paradigms in Chicano Studies. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Majors and minors only. A critical assessment of paradigms and intellectual traditions in Chicano Studies. (F,SP)

110. Latino/a Philosophy and Religious Thought. (4) Three hours of lecture per week for one semester. For the last 30 years, the themes of identity and liberation have dominated the social and religious thought of subaltern subjectivities in the Americas. The centrality of these ideas respond to the legacies of both of opposition to the legacies of the history of conquest, colonization, racism, and sexism in the region. In this course, we are going to study the intellectual production of various ethnic groups in the Americas,
142. Major Chicano Writers. (4)
Critical and theoretical analysis of contemporary Chicana and Chicano literatures and discourse. (F,SP)

130. Mexican and Chicano Art History. (3)
Three hours of lecture per week. Formerly 30. A survey of Mexican and Chicano art from Mesoamerican period to contemporary Chicano art. Special focus on the mural movement and its relationship to artist-activist production and the development of Chicano symbols and cultural production. (F,SP)

133. Chicano Music. (4)
Three hours of seminar per week. What is Chicano music? When did it begin? Who are considered Chicano musicians? How has Chicano music changed in relationship to the historical changes in the Chicoano community? How has Chicano music helped shape and been shaped by popular music and popular culture? How has Chicano music been a music accommodation and/or resistance? What role have Chicano artists/musicians played as cultural workers? Does Chicano music have a political agenda? How have Chicano artists and recording companies fared in the music industry? These are a few of the questions we will explore in this course. Course goals and objectives will be accomplished through readings, research, guest lectures, participation in listening to Chicano music, and classroom discourse. The key ingredient to the success of this course. (F,SP)

135A. Latino Narrative Film: To the 1980s. (4)
Students will receive 2 units for 135A after taking 135. Three hours of lecture per week. This course examines narrative films primarily of the 1970s and 1980s that deal with the Latino/Chicano experience and the influences that shaped the views reflected in those cinematic works. Films produced in the U.S. and in Latin America will be examined in the course, as well as experimental and independent productions. (F,SP) Staff

135B. Latino Narrative Film Since 1990. (4)
Students will receive 2 units for 135B after taking 135. Three hours of lecture per week. This course examines major narrative films produced since the 1980s that deal with the Latino/Chicano experience and the influences that shaped the views reflected in those cinematic works. Films produced in the U.S. and in Latin America will be examined in the course. (F,SP) Staff

135C. Latino Documentary Film. (4)
Three hours of lecture per week. This course examines documentary films that are Latino-produced and/or Latino-in context in content. Emphasis will be placed on documentary film analysis and interpretation, taking into account the influences of both U.S. and Latin American cinema; alternative media, docudrama, pod-casts, and the like will also be included. (F,SP) Staff

141. Chicana Feminist Writers and Discourse. (4)
Four hours of lecture per week. Prerequisites: 40. A critical and theoretical analysis of contemporary Chicana writers and Chicana feminist discourse. (F,SP) Staff

142. Major Chicano Writers. (4)
Three hours of lecture per week. Prerequisites: 40. A critical and theoretical analysis of contemporary Chicana writers and Chicana feminist discourse. (F,SP) Staff

143. Chicano and Latin American Literature. (3)
Three hours of lecture per week. Prerequisites: 40 recommended. A study of the relationships and parallel aspects between Latin American and Chicano literature. Emphasis on the role of protest by Chicano writers and the impact of the Chicano people's struggle on the Chicanos. (F,SP)

145. Contemporary Issues of Chicanos. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 50 required, 40 or 20 recommended. This course examines contemporary issues facing Chicanos in the U.S. The scope is historical-structural and examines political, and economic arrangements resulting in race, class and gender-based inequities. An individual paper scope examines the variations of: (a) class, racial/ethnic and gender identity; (b) social integration, and (c) responses to structural barriers. (F,SP)

148. Chicano/Latino Theatre Workshop. (5)
Course may be repeated for credit. Four hours of lecture and two hours of laboratory per week. Prerequisites: Reading composition or Consent of instructor. Survey of Chicano/Latino Theatre from the 1960s to the present. Students will be introduced to various aspects of theatre production with particular emphasis on playwriting and directing. Skills in theatre production will be learned through involvement in the creation of a production. (F,SP)

149. Creative Writing. (5)
Three hours of lecture and three hours of workshop per week. Prerequisites: 40 and consent of instructor. The student enrolled will study intensively craft in narrative, poetic, and dramatic forms and problems encountered by Chicano writers. (F,SP) Staff

150A. History of the Southwest: Spanish and Mexican. (4)
Three hours of lecture per week. Prerequisites: 50 recommended. The role of people of Mexican descent in the Southwest from 1800 to 1880. (F) Saragoza

150B. History of the Southwest: Mexican-United States War to Present. (4)
Three hours of lecture per week. Prerequisites: 50 recommended. The relationship between people of Mexican descent and American society from 1880 to the present. (SP) Saragoza

159. Mexican Immigration. (4)
Three hours of lecture per week. A comparative view of Mexican immigration to the U.S. The relationship between immigration and Chicano community formation will be examined. Issues addressed include settlement patterns, socialization, educational aspirations, identity transformation, and historical changes. (F,SP)

161. Central American Peoples and Cultures. (4)
Three hours of lecture per week. A comparative survey of the peoples and cultures of the countries of the Central American Isthmus from a historical and contemporary perspective. (F,SP) Staff

162. The U.S. Role in Central America. (4)
Three hours of lecture and one hour of discussion per week. A critical examination of the role played by the United States in Central America from the 19th century to the present. The focus will be on trends in U.S. policy, including an assessment of current policy alternatives in Nicaragua, El Salvador, Guatemala, Honduras, and the impact of those policies on Latinos in the United States. (F,SP)

163. Caribbean Migration to Western Europe and the United States. (4)
Three hours of seminar per week. The main goal of this course is to offer a broad and comprehensive understanding of the Caribbean migration experience to the United States. We will cover all issues such as the migration origins, modes of incorporation, racism, cultural/identity strategies, and the political-economic relationship between the country of origin and the metropolitan host society. To understand the specificity of Caribbean migrants to the USA, it is fundamental to understand the regional Caribbean migration circuits to Western Europe. Thus, the course will provide a comparative perspective with Caribbean migrations to Western Europe. (F) Staff

165. Cuba, the United States and Cuban Americans. (4)
Three hours of lecture and one hour of discussion per week. This course examines the contested formation of Cuban identity, where the questions of race and the relationship to the United States have constituted fundamental issues in the debate over the meaning of Cubanidad. The course will address the ways in which Cuba dealt with the issues of race and national identity after the Revolution of 1959, as well as for the Cuban emigre community in the United States. Issues of gender, class, and cultural expression will be crucial elements of analysis throughout the course. (F,SP)

172. Chicanos and the Educational System. (4)
Three hours of lecture per week. Prerequisites: 70 recommended. An examination of the historical and contemporary relationship between the educational system and the Mexican community in the United States. A comparative study of the historical relationship of schools with the Mexican population as backdrop to an examination of the current educational conditions of the Chicano students; the different historical trends in the education of Chicanos including alternative schools, bilingual education, school segregation, and higher education. (F,SP)

174. Chicanos, Law, and Criminal Justice. (4)
Three hours of lecture per week. Prerequisites: 70 recommended. An examination of the development and function of law, the organization and administration of criminal justice, and their effects in the Chicano community; response to these institutions by Chicanos. (F)

176. Chicanos and Health Care. (3)
Three hours of lecture per week. Prerequisites: 70 recommended. Relationship of the health care delivery system in the U.S. to the Chicano community. To include an examination and understanding of the concept of mental health services defined by Chicanos. Analysis of program alternatives and the Chicano response to health care problems and issues. (F,SP)

179. Chicano/a Families. (3)
Three hours of lecture and one hour of discussion per week. This course provides an overview of Chicano/a family structures, using historical, statistical, and theoretical approaches for analysis of familial patterns. Special attention is given to the use of traditional-cultural explanations of household gender relations, extended families, and Chicano communities. (F,SP)

180. Topics in Chicano Studies. (3)
Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Designed primarily to permit instructors to deal with topics with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. (F,SP)

195. Senior Thesis. (4)
By arrangement. Prerequisites: Consent of instructor. Writing of a thesis under the direction of the member(s) of the faculty. (F,SP)

H195A-H195B. Honors Thesis. (3-3) Hours to be arranged. Credit and grade to be awarded on the basis of a thesis. Prerequisites: Junior standing; consent of instructor. Course may be taken on a passed/not passed basis. (F,SP)

198. Directed Group Study. (1-3)
Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Designed primarily to permit instructors to deal with topics with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Individual arrangements. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing; consent of instructor. Supervised independent field experience in the community relevant to specific aspects of Chicano studies. Regular meetings with faculty sponsor and written reports required. (F,SP)

199. Directed Group Study. (1-3) Course may be repeated for credit. Individual arrangements. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing; consent of instructor. Directed group study in Chicano studies for advanced students. Regular meetings with faculty sponsor and written reports required. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Individual arrangements. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing; consent of instructor. Independent work for advanced students in Chicano studies. Regular individual meetings with faculty sponsor and written reports required. (F,SP)
City and Regional Planning
( College of Environmental Design)
Department Office: 228 Wurster Hall, (510) 642-3256
dcp.ced.berkeley.edu
Chair: Karen Christensen, Ph.D.
Professors
†Nezar AlSayyad, Ph.D. University of California, Berkeley. Architectural design
Peter Bosselman, Ph.D. University of California, Los Angeles. Urban design, public communication
Teresa Caldera, M.A. University of São Paulo, Ph.D. University of California, Berkeley. Comparative urban studies, social theory, ethnography and qualitative methodology
Robert B. Cerervo, M.C.P. Georgia Institute of Technology, Ph.D. University of California, Los Angeles. Transportation planning, planning methods
Sheila Collins, Ph.D. London School of Economics. Economic development theory
Elizabeth Deakin, M.S. Massachusetts Institute of Technology, J.D. Boston College. Urban policy, transportation planning
Judith E. Ennes, Ph.D. Massachusetts Institute of Technology. Social policy analysis
Anne Sazam, M.C.P. University of California, Berkeley, Ph.D. Massachusetts Institute of Technology. Regional development, planning methodology
Michael Southworth, M.C.P., Ph.D. Massachusetts Institute of Technology. Urban design, environmental psychology, city planning
Edward Blakey (Emeritus). Ed.D.
Marcel Castells (Emeritus). LL.B., Ph.D.
David E. Dowall (Emeritus). M.R.P., Ph.D.
Donald E. Figer (Emeritus). Ph.D.
Peter Hall (Emeritus). Ph.D.
Ira Michael Heyman (Emeritus). LL.B.
Allan B. Jacobs (Emeritus). Ph.D.
Michael B. Teitz (Emeritus). Ph.D.
Irene Tinker (Emeritus). Ph.D.
Martin Wachs (Emeritus). Ph.D.
Associate Professors
Karen Chapple, M.C.P., Ph.D. University of California, Berkeley. Local economic development, metropolitan planning, low-wage labor markets, planning methods
Karen Christensen, Ph.D. University of California, Berkeley. Urban policy, housing, technology
Frederick C. Collignon, Ph.D. Harvard University. F.A.I.C.P. Social policy, services planning
Timothy P. Duane (Emeritus). Ph.D. Stanford University. Environmental planning, energy issues, infrastructure
Elizabeth MacDonald, M.C.P., Ph.D. University of California, Berkeley. Urban design, public spaces, streets, urban form
John D. Radke, Ph.D. University of British Columbia. Geographic information systems, environmental planning, database management
†Ananya Roy, M.C.P., Ph.D. University of California, Berkeley. Urban studies, international development, comparative housing studies, gender and planning, social justice, research methods
Assistant Professors
Daniel Chatman, M.P.H. Harvard University; University of California, Los Angeles. Transportation planning
Jason Cortesi, M.C.P. Massachusetts Institute of Technology. Environmental policy and planning, energy issues, infrastructure
Elisabeth A. DeBenedetti, M.C.P. University of California, Berkeley. Environmental justice
Malo André Hutson, M.C.P. University of California, Berkeley, Ph.D. Massachusetts Institute of Technology. Urban policy and politics
Adjunct Professors
Arthur Blautstein, M.A. Columbia University. Public policy, community and economic development
Frederick Ezell, M.C.P. University of California, Berkeley; J.D. Hastings College of the Law. Environmental law, development law
Michael Frischmann, M.C.P., Ph.D. University of California, Berkeley. Housing, community, finance, project management
Adjunct Assistant Professor
Edward Egan, M.A. St. John's University, New York; Buffalo; Ph.D. University of California, Berkeley. Regional economics, industry cluster development
The Profession
City and regional planners seek to make a difference in the future. The profession of city planning was born in the 19th century to deal with the problems of fast-growing industrial cities. Since then, city planning has expanded to include social reform, physical planning and urban design, housing and community development, transportation and infrastructure systems, urban and regional economic development, the natural and metropolitan environment, historic preservation, sustainable development, geographic information systems, systems, contemporary urban development, urban management, and of course, land use planning. Graduates of city planning programs work in city, metropolitan, and state planning offices; for private, nonprofit, and community developers; for environmental organizations; in consulting firms and research institutions; in international development agencies; and for many public and private enterprises. All are dedicated to using their personal and professional skills and abilities to produce better, more livable, and more equitable communities.

Undergraduate Program

Urban Studies Major.
The undergraduate major in urban studies introduces interested students to cities and urban environments as objects of study, analysis, criticism, and planned transformation. The major has a core in urban studies and planning with courses in city planning and environmental design, and an interdisciplinary curriculum in various urban-related social science fields and disciplines.

City and Regional Planning Minor.
The Department of City and Regional Planning offers an interdisciplinary minor in city planning that is open to students in all majors. The minor trains students in the study and analysis of urban environments and teaches them about the practices, policies, and politics that constitute the field of urban planning.

Graduate Programs

The Master of City Planning Degree.
The two-year Master of City Planning (M.C.P.) program comprises a solid core of knowledge in the field of city and regional planning—including history, theory, planning methods, urban economics, and urban institutions analysis—and an opportunity to specialize in one of five concentration areas (or to create a self-defined emphasis): housing, community, and economic development; environmental planning and policy; land use planning; transportation policy and planning; and urban design. M.C.P. students can also combine one or more concentrations with either of two fields: international and comparative planning, and GIS and spatial analysis.

The M.C.P. degree requires the completion of 48 units of coursework during four semesters in residence. Unless they already have equivalent work experience, students must also complete a three-month internship. The terminal M.C.P. requirement, undertaken during the second year of study, takes the form of a professional report or a client report. Alternatively, some elect to write a master's thesis. The Department of City and Regional Planning participates in concurrent master's degree programs with the Departments of Architecture, Landscape Architecture and Environmental Planning, Civil and Environmental Engineering, and Public Health; and with UC Berkeley School of Law, UC Hastings College of the Law, and International and Area Studies.

The Doctor of Philosophy Degree in City and Regional Planning.
The Ph.D. program aims to prepare students interested in cities, regions, and planning for careers in teaching, research, and advanced practice. The program stresses preparation in research methods, spatial and regional analysis, methods of the policy sciences, development theory, historical processes, and the critical appraisal of alternative courses of urban and metropolitan change.

Each student's program of study is individually designed with the assistance and support of an adviser, in accordance with the student's specific intellectual interests and an advisor's advice. Ph.D. students are required to complete an outside field requirement (in another department) and an inside field requirement in city and regional planning before taking their comprehensive examination. The normal time in the program is four to five years.

Lower Division Courses

97. Field Studies in City and Regional Planning. (1-3) Course may be repeated for credit. Three hours of fieldwork per week per unit. Must be taken on a passed/not passed basis. Group studies developed to meet specific needs of students.

Upper Division Courses

110. Introduction to City Planning. (4) Three hours of lecture/discussion per week, plus additional fieldwork. Prerequisites: Open to majors in all fields. Survey of city planning as it has evolved in the United States since 1800 in response to physical, social, and economic problems; major concepts and procedures used by city planners and local governments to improve the urban environment. (F,S) Collignon, Christensen

111. Introduction to Housing: An International Survey. (3) Three hours of lecture/discussion per week. Prerequisites: Open to majors in all fields. Housing problems, government housing policy, and housing as a field of urban planning practice. Emphasis on critical international issues in the Third World and the U.S. (SP) AlSayyad

112A. The Idea of Planning. (3) Three hours of lecture discussion per week. Prerequisites: Open to majors in all fields. Planning is often called for in response to societal crises; thus, nature and criticisms of the planning idea, appropriateness of planning, sources of legitimacy for and justification of planning, and future directions of the planning idea are examined. (F,S) Cohen

113A. Economic Analysis for Planning. (3) Three hours of lecture and discussion per week. Introduction to economic concepts and thinking as used in planning. Micro-economic theory is reviewed and criticized. (F) Staff

113B. Community and Economic Development. (3) Three hours of lecture/discussion per week. Introduction to political, economic and social issues involved in theory and practice of community economic development. Focus on national economic and social policies, role of local community economic development corporations (COCs), resolution of conflicts between private-sector profitability and public sector (community) accountability through critical review of the planning process. (SP) Blautstein

C114. Introduction to Urban and Regional Transportation Planning. (3) Three hours of lecture/discussion per week. This course introduces students to the characteristics of urban transportation systems, the methods through which they are planned and analyzed, and the dimensions of key policy issues confronting decision makers in Civil and Environmental Engineering C154. (SP) Staff

*Recipient of Graduate School Distinguished Teaching Award

†Recipient of Distinguished Teaching Award

‡Recipient of Distinguished Teaching Award
119. Planning for Sustainability. (3) Three hours of lecture/discussion per week. Prerequisites: Open to majors in the College of Environmental Design. Examines sustainability and the concept of planning for sustainability from a variety of perspectives. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. (SP) Staff

204A. Methods of Planning Data Analysis. (2,4) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Methodological perspectives on issues that cut across the concentrations, including housing, transportation, and equity, and it emphasizes strategies for governance of metropolitan regions in the U.S. and Europe. (F) Innes

209. Methods for Collaborative Planning: Meeting Management, Negotiation, and Consensus Building. (3) Three hours of seminar per week. A methods course in basic techniques of meeting management, negotiation, mediation, and consensus building, with an emphasis on planning processes and techniques appropriate to city planning and invoking individual effort and that of collaborative student groups in formulating planning policies and programs for an urban area. Occasional Friday meetings are required. (SP) Macdonald

212. Transportation and Land Use Planning. (3) Three hours of lecture/discussion per week. Prerequisites: 113A or equivalent. Examination of the interactions between transportation and land use systems; historical perspectives on transportation; characteristics of travel and demand estimation; evaluation of system performance; location theory; models of transportation and urban structure; empirical evidence of transportation-land use impacts; case study examination of transportation and land use practices such as environmental management, community and ethnic conflict, transportation, housing development, and environmental justice, along with videos and brief lectures. (SP) Staff

214. Infrastructure Planning and Policy. (3) Three hours of lecture/seminar per week. Survey of basic knowledge and technology of physical infrastructure systems: transportation, water supply, wastewater, stormwater, solid waste management, community energy facilities, and urban public facilities. Environmental and energy impacts of infrastructure development; centralized vs. decentralized systems; case studies. (F) Dowell

217. Transportation Policy and Planning. (3) Three hours of lecture/discussion per week. Prerequisites: 213, Civil Engineering 290U, or consent of instructor. Policy issues in urban transportation planning, measuring the performance of transportation...
systems; the transportation policy formulation process; transportation finance, pricing, and subsidy issues; energy and air quality in transportation; specialized transportation for elderly and disabled people; innovations in transportation policy. Also listed as Civil and Environmental Engineering C250N. (F,SP) Staff

218. Transportation Planning Studio. (4) Four hours of studio laboratory per week. Prerequisites: 213 or 217 or consent of instructor. Studio on applying skills of transportation planning. Topics vary, focusing on specific urban sites and multi-modal issues, including those related to planning for mass transit and other alternatives to the private automobile. Recent emphases include: (1) planning and designing transit vessels and transit-based housing. (F) Deakin

219. Comparative International Topics in Transportation. (3) Three hours of lecture/discussion per week. Covers comparative planning and policy topics in urban, regional, and rural transportation that are transnational in nature. Builds policy lessons on planning for mobility, accessibility, and sustainability in different political and contextual settings. Case studies are drawn from both developed and developing countries. (SP) Cervero

220. The Urban and Regional Economy. (3) Three hours of lecture/discussion per week. Covers the nature and extent of economic activity in metropolitan regions; economic base analysis; impact analysis and projection of changing labor force and industrial structure; economic-demographic issues; growth, income distribution, planning controls; international and greater scale growth and population distribution issues. (F) Staff

223. Economic Development Planning. (3) Three hours of lecture/discussion per week. Strategy and tools for developing employment attracting investment and improving the standard of living in regional, state, and national economies. Organization of economic development activities, with a focus on current practices. (SP) Chapple

225. Workshop in Regional Analysis. (3,4) Three hours of lecture/discussion per week, plus five-week optional module. Prerequisites: 204A or 220. This course explores regional economic modeling, descriptive econometric and simulation techniques, input-output analysis, regional accounting, impact analysis, cluster analysis, and qualitative sectoral studies. Includes an optional 1-unit applied module during the last five weeks of instruction. (F) Chapple

227. Studies in Regional Growth and Development. (3) Three hours of seminar per week. Formerly C227. Intermediate to advanced course focusing on theory and empirical evidence concerning regional growth and development. Includes reading and discussion. Staff

228. Research Workshop on Metropolitan Regional Planning. (4) Four hours of studio and two hours of seminar per week. Prerequisites: Relevant past coursework and consent of instructor. Field problem in major phases of metropolitan or regional planning work. A collaborative student-group effort in formulating policy or plan recommendations within specific governmental framework. Staff

229. Research Seminar in Regional Development. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: 220 and consent of instructor. A close examination of selected issues in policy, methods, and patterns of regional development, through student/faculty research papers and class discussions. Advanced primarily for Ph.D. students and master’s students writing professional reports and theses. Staff

230. U.S. Housing, Planning, and Policy. (3) Three hours of lecture/discussion per week. Theory of housing markets and empirical methods for measuring market performance; housing consumption, housing supply and production, and market performance. Empirical analysis and applications to policy issues. (F) Christensen

231. Housing in Developing Countries. (3) Three hours of lecture/discussion per week. This course covers issues of housing policy and housing form in the urbanizing developing world from a comparative and cross-cultural perspective. Using case studies from Latin America, Asia, and the elderly and disabled, it highlights the role of physical planners as community activists involved in practices like squatter development slum upgrading, sites and services, and self-help. (SP) AlSayyad

234. Housing and the Urban Economy. (3) Three hours of seminar per week. Prerequisites: Public Policy 210A or equivalent. This course considers the economics of urban housing and land markets from the viewpoints of investors, developers, public and private sector policymakers. It covers the determinants of housing supply and demand, the role of public policy in housing markets and empirical methods for measuring those related to planning for mass transit and other alternatives to the private automobile. Recent emphases include: (1) planning and designing transit vessels and transit-based housing. (F) Deakin

235. Methods of Project Analysis. (3) Three hours of lecture/discussion per week. Prerequisites: 207 or equivalent. Using case studies, this course acquaints students with the techniques of project feasibility; analysis of project proposals and overall project compatibility assessments. This course will be based on a variety of public and private sector developments, in central city and suburb locations. (SP) Smith-Heimer

238. Development—Design Studio. (4) Two hours of lecture/seminar and four hours of studio per week. Prerequisites: 235. Studio experience in analysis, design and planning of design or general plans for preparation for urban communities undergoing development, with a focus on site development and project planning. (F) Smith-Heimer

242. Theories of Urban Form and Design. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Formerly 240. Theories and patterns of urban form throughout history are studied with emphasis on the role of planning and design in shaping cities and the relationship between urban form and social, economic, and geographic factors. Using a case study approach, cities are evaluated in terms of various theories and performance dimensions. Also listed as Landscape Architecture C250. (F) Southworth

243. Shaping the Public Realm. (5) Three hours of lecture and six hours of studio per week. Prerequisites: C240/Landscape Architecture C250; previous design studios. This interdisciplinary studio focuses on the public realm of cities and explores opportunities for creating more humane and delightful public places. Problems will be at multiple scales in both existing urban and new urban designs. Skills in analyzing, designing, and communicating urban design problems will be developed. Studio work will be supplemented with lectures, discussions, and field trips. (SP) Macdonald

244. Sustainable Communities. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course introduces students to advanced planning and policy analyses and frameworks for sustainable urban development, transportation, and cross-cultural perspective. Using case studies from Latin America, Asia, and the elderly and disabled, it highlights the role of physical planners as community activists involved in practices like squatter development slum upgrading, sites and services, and self-help. (SP) AlSayyad

245. Environmental Planning and Regulation. (3) Three hours of lecture per week. Formerly 251. This course will examine emerging trends in environmental planning and policy and the regulatory framework for environmental planning encountered in the U.S. We will also relate the institutional and policy framework of California and the U.S. to other nations and international traditions. The emphasis of the course will be on regulating “residuals” as they affect three media: air, water, and land. Also listed as Landscape Architecture C251. (F) Corburn

254. Sustainable Communities. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course examines and explores the concept of sustainable development at the community level. The course has three sections: (1) an introduction to the discourse on sustainable development; (2) an exploration of several leading attempts to incorporate sustainability principles into plans, planning, and urban design; (3) an examination of European attempts to establish metropolitan patterns and urban designs for a more sustainable “green urbanism.” Duane

255. Urban Planning Applications of Geographic Information Systems. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. This course introduces students to the use of new and rapidly expanding field of Geographical Information Systems (GIS). The course focuses on GIS and its application to both city and regional problems in the San Francisco Bay Area and offers students a toolkit for integrating spatial information into planning solutions. The laboratory sessions will mainly employ a vector model to solving problems. Topics include problem identification, data discovery, database design, construction, modeling, and cross-cultural perspective. Using case studies and will serve on reviews. Also listed as Landscape Architecture C203. (F) Southworth

248. Advanced Studio: Urban Design/Environmental Planning. (5) Three hours of seminar and five hours of studio per week. Prerequisites: 208 or 250. Advanced project design and studio work in land use, and in environmental planning. Occasional Friday meetings are required. (SP) Bosselman, Macdonald

249. Urban Design in Planning. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will introduce students to the organization and conduct of local land use planning as practiced in California. The course will cover the following topics: California statutes, the General Plan, CEQA, specific plans and how to do them, and managing a planning department. (SP)

250. Introduction to Land Use Planning. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will introduce students to the organization and conduct of local land use planning as practiced in California. The course will cover the following topics: California statutes, the General Plan, CEQA, specific plans and how to do them, and managing a planning department. (SP)

251. Environmental Planning and Regulation. (3) Three hours of lecture per week. Formerly 251. This course will examine emerging trends in environmental planning and policy and the regulatory framework for environmental planning encountered in the U.S. We will also relate the institutional and policy framework of California and the U.S. to other nations and international traditions. The emphasis of the course will be on regulating “residuals” as they affect three media: air, water, and land. Also listed as Landscape Architecture C251. (F) Corburn

252. Land Use Controls. (3) Three hours of lecture/discussion per week. An advanced course in implementation of land use and controls. The theory, practice and impacts of zoning, growth management, land banking, development systems, and other techniques of land use control. Objective is to provide students with technical, legal, and cross-cultural perspective. Using case studies, this course acquaints students with the techniques of project feasibility; analysis of project proposals and overall project compatibility assessments. This course will be based on a variety of public and private sector developments, in central city and suburb locations. (SP) Smith-Heimer

254. Sustainable Communities. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course examines and explores the concept of sustainable development at the community level. The course has three sections: (1) an introduction to the discourse on sustainable development; (2) an exploration of several leading attempts to incorporate sustainability principles into plans, planning, and urban design; (3) an examination of European attempts to establish metropolitan patterns and urban designs for a more sustainable “green urbanism.” Duane

255. Urban Planning Applications of Geographic Information Systems. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. This course introduces students to the use of new and rapidly expanding field of Geographical Information Systems (GIS). The course focuses on GIS and its application to both city and regional problems in the San Francisco Bay Area and offers students a toolkit for integrating spatial information into planning solutions. The laboratory sessions will mainly employ a vector model to solving problems. Topics include problem identification, data discovery, database design, construction, modeling, and cross-cultural perspective. Using case studies and will serve on reviews. Also listed as Landscape Architecture C203. (F) Southworth

248. Advanced Studio: Urban Design/Environmental Planning. (5) Three hours of seminar and five hours of studio per week. Prerequisites: 208 or 250. Advanced project design and studio work in land use, and in environmental planning. Occasional Friday meetings are required. (SP) Bosselman, Macdonald

249. Urban Design in Planning. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will introduce students to the organization and conduct of local land use planning as practiced in California. The course will cover the following topics: California statutes, the General Plan, CEQA, specific plans and how to do them, and managing a planning department. (SP)

250. Introduction to Land Use Planning. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will introduce students to the organization and conduct of local land use planning as practiced in California. The course will cover the following topics: California statutes, the General Plan, CEQA, specific plans and how to do them, and managing a planning department. (SP)
260. Theory, History, and Practice of Community Development. (3) Three hours of lecture/discussion per week. Formerly 260. This course will explore the theory, history, methods, and practice of local community development. The course will begin by examining the historical roots of community involvement and action. It will present alternative explanations for different paths of neighborhood and community change.

261. Citizen Involvement in the City Planning Process. (3) Students will not receive credit for C261 after taking City and Regional Planning 208, Interepartmental Studies 209, and Interepartmental Studies 210. Three hours of lectures and seminars per week. Formerly Interepartmental Studies 212. An examination of the roles of the citizens and citizen groups in the city planning process. Models for citizen involvement ranging from public hearings to community control. Examination of the effectiveness of different organizational models in different situations. Also listed as Landscape Architecture C237. (F,SP) Duane

265. Community Development Practicum. (2-4) Course may be repeated for credit. Three hours of seminar per week. Analysis of planner’s roles in urban community development, focusing on a diverse set of local planning practices, and reading and discussion of research by Ph.D. students and faculty. (F,SP) Staff

280. Doctoral Seminars. Course may be repeated for credit. Two to three hours of seminar per week. Prerequisites: Ph.D. standing. Doctoral research seminars on research design, methods, and presentation of dissertation work. (F,SP)

280A. Research Design for the Ph.D. (3) Formerly 260. This course is open only to students preparing their dissertation research plan and prospectus. Weekly writing assignments designed to work through each step of writing the prospectus from problem framing and theoretical framework to methodology. At least one oral presentation to the class is required of all students. (F,SP) Innes

280B. Advances Methods for the Ph.D. (3) Advanced research methods for doctoral students. Focus on qualitative and/or quantitative methods varies by semester. (F,SP) Caldeira

280C. Doctoral Colloquium. (2) Must be taken on a satisfactory/unsatisfactory basis. Presentation and discussion of research by Ph.D. students and faculty. (F,SP) Staff

281. Theories of Planning Practice. (3) Three hours of seminar per week. Prerequisites: Graduate standing; 1-unit modules to be offered, taking one per semester. (Optional) Suitable for graduate students in professional programs doing research on planning and policy practice issues. Focuses on theory and practice of planning, with emphasis on the role of different types of knowledge in different kinds of practice. Compare and contrast interpretive, and critical approaches to knowledge and links these to policy analysis, interactive planning, group processes, and emerging models of critical planning practice. (SP) Innes

282. Planning and Governing. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Analysis of selected topics in city and metropolitan planning with emphasis on implications for planning practice and urban policy formation. In some semesters, optional five-week, 1-unit modules exploring topics attracting students. Alternative planning strategies for conditions of uncertainty in the absence of science-based knowledge. (F) Christensen

290. Topics in City and Metropolitan Planning. (1-3) Course may be repeated for credit. Three hours of lecture and discussion per week per module. Prerequisites: Consent of instructor. Origin and evolution of the idea of planning. Values, choice, and purposive behavior; knowledge and social action; rationales for governmental intervention; and regulations and systems. Alternative planning strategies for conditions of uncertainty in the absence of science-based knowledge. (F) Christensen

291. Special Projects Studio in Planning. (4-6) Course may be repeated for credit. Two to three hours of lecture and six to nine hours of studio per week, depending on the number of units. Prerequisites: Graduate standing. Studio on special projects in planning. Topics vary by semester. (F,SP) Staff

295. Supervised Research in City and Regional Planning. (1-2) Course may be repeated for credit. Regular note-taking with assigned faculty sponsor. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in department and consent of adviser and sponsor. Supervised experience on a research project in urban or regional planning. Any combination of 295, 297 courses may be taken for a total of 6 units maximum towards the M.C.P. degree. (F,SP)

297. Supervised Field Study in City and Regional Planning. (1-2) Course may be repeated for credit. Regular note-taking with assigned faculty sponsor. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in department and consent of adviser and sponsor. Supervised experience relative to specified aspects of practice in city or regional planning. Any combination of 295, 297 courses may be taken for a total of 6 units maximum toward the M.C.P. degree. A maximum of 3 units of 297 can be used for degree requirements. (F,SP)
Overview

The mission of the Department of Civil Engineering at Berkeley is to serve as the world’s academic leader in civil and environmental engineering, defining the evolving boundaries of the field through teaching and scholarly research. The department educates undergraduates and graduate students to be knowledgeable, forward-thinking, and ethical leaders in civil and environmental engineering, characterised by leadership and innovation. The faculty values professional and public service, and is dedicated to the physical world.

Undergraduate Program

Within the context of this broad objective, the B.S. degree program provides a solid foundation in the scientific and engineering fundamentals along with exposure to humanities and social sciences. This foundation is essential for solving societal problems in the areas of public safety, resource protection, natural hazard mitigation, and the efficient functioning of urban and natural systems within the United States and worldwide.

The four-year undergraduate curriculum leading to the B.S. degree in environmental engineering provides students with the knowledge and skills necessary for professional employment in the field of environmental engineering. The curriculum is designed to prepare students for entry-level positions in the environmental industry, government agencies, consulting firms, and other organizations. It provides a strong foundation in environmental science, engineering, and management concepts and principles, and prepares students for careers in environmental protection, policy analysis, and environmental project management.

Curriculum and Requirements for the Bachelor’s Degree

The curriculum requirements are broad and general education in civil engineering. In addition, students with a specific interest within civil and environmental engineering may select an optional area of emphasis in engineering and project management, environmental engineering, geoenvironmental engineering, structural engineering, mechanics and materials, or transportation engineering.

Graduate Program

The Department of Civil and Environmental Engineering is comprised of the following graduate programs: Civil Engineering; Environmental Engineering; Geoenvironmental Engineering; Structural Engineering, Mechanics and Materials (SEMM); and Transportation Engineering. The Civil Engineering program offers M.S. and Ph.D. degrees in civil engineering and spans the other five programs. Students may pursue the academic degrees of M.S. and Ph.D., and the professional degree of M.Eng. The M.S. program normally lasts one year and the M.Eng. program, two years; the doctoral program requires at least two years after the attainment of a master’s degree and includes a dissertation or an equivalent design project. The department also offers programs leading to dual degrees in the following areas: (1) M.S. in Engineering and Master of Architecture (SEMM and the Department of Architecture); (2) M.S. in Engineering and Master of City Planning (Transportation and the Department of City and Regional Planning); and (3) M.S. in Engineering and Master of Public Policy (Environmental and the School of Public Policy).

The Department of Civil and Environmental Engineering includes the following areas of professional specialization:

Civil systems. Civil systems integrates engineering, science, and management tools and techniques for solving complex civil and environmental engineering problems. To understand the interplay of science and engineering in the design of infrastructure systems, students take courses in technical tools (e.g., information management, control, modeling) and human dimensions of civil engineering. The B.S. program in civil engineering prepares students for careers in civil engineering, with specialisations in structural engineering, water resources engineering, environmental engineering, and transportation.

Engineering and project management. Engineering and project management deals with planning, organizing, leading, constructing, designing, operating, and financing projects during the lifecycle of civil engineering systems. This program is interdisciplinary based on the collaborative principles and knowledge that underlie management and leadership, human organizational factors, quality and reliability assessments, lifecycle engineering and
management processes, engineering and the environment, construction engineering and management, and implementation processes and strategies.

Environmental engineering. Environmental engineering is concerned with the application of science and technology to manage environmental resources and prevent or limit environmental degradation. Specific subject areas include water and air quality engineering, and provide an introduction to ecological engineering, hydrology and water resources management, and environmental fluid mechanics.

Geoengineering. Geoengineering is concerned with planning, design, and construction on, in, or with soil and rock, with the aim of achieving geotechnical stability and to enhance the environment. It includes the fields of soil mechanics, foundation engineering, geological engineering, rock mechanics, environmental geotechnics, groundwater, and geotechnical aspects of earthquake engineering. Also included is the field of engineering geosciences which adds geophysics, reservoir modeling, and petroleum engineering.

Structural engineering, mechanics, and materials. Structural engineering, mechanics, and materials consists of several emphases. Structural engineering is concerned with the analysis and design of all structures, including traditional load-bearing structures. Structural mechanics employs the disciplines of applied mathematics and the engineering sciences to examine a wide range of problems in the behavior of structural elements and systems. Students will learn the mathematical description of properties. Structural materials engineering concerns the development of construction materials for engineering projects, such as concrete, steel, and wood. The properties of structural materials change from their raw state to their final state as a result of changes in porosity and thermal and environmental responses. Laboratory tests include evaluation of behavior of these materials under a wide range of conditions.

Engineering Geology. (3) Three hours of lecture and two hours of laboratory per week. Field trip required. Prerequisites: Chemistry 1A (may be taken concurrently). Principles of physical and structural geology, the influence of geological factors on engineering works and the environment. Field trip. (F,SP)

Introduction to Civil and Environmental Engineering. (1) One hour of lecture per week. Must be taken on a passed/not passed basis. A course designed to familiarize the entering student with the nature and scope of civil and environmental engineering and its component specialty areas. (F,SP)

Engineering Data Analysis. (3) Students will receive no credit after taking Statistics 25. Three hours of lecture and two hours of laboratory per week. Prerequisites: Engineering 7. Application of the concepts and methods of probability theory and statistical inference to CEE problems and data; graphical data analysis and sampling; elements of set theory; elements of probability theory; random variables; expectation; simulation; statistical inference. Applications to various CEE problems and real data will be developed by use of MATLAB and existing codes. The course also introduces various domains of uncertainty analysis in CEE. (F,SP)

Supervised Group Study and Research. (1-3) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Supervised group study and research by lower division students. (F,SP)

Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Freshman or sophomore standing and consent of instructor. Minimum GPA of 3.3 required. Supervised independent study by lower division students. (F,SP)

Elementary Fluid Mechanics. (4) Three hours of lecture and one hour of discussion per week, plus individual laboratory experiments. Prerequisites: C30/ Mechanical Engineering C85, 93 (may be taken concurrently). Fluid statics and dynamics, including laboratory experiments with technical reports. Fundamentals of uncertainty analysis in CEE. (F,SP)
111. Environmental Engineering. (3) Three hours of lecture per week. Prerequisites: 100, required, or consent of instructor. Quantitative overview of the properties of environmental contaminants and the transport and transformation processes that govern their concentrations in air and water. Fundamental topics include environmental chemical equilibrium, reaction rate models, and transport phenomena. Selected applications to issues in water quality engineering, air quality engineering, and hazardous waste management. (FSP) Alvarez-Cohen, Nazarro.

112. Environmental Engineering Design. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 100, 111 required; 167 recommended. Engineering design and project management of environmental quality control systems. Students will complete a design project focusing on pollution control in one of the following systems: wastewater treatment plant, sanitary landfill, municipal waste incinerator, contaminated groundwater remediation, or fossil-fueled power plant. Lectures will address process design, economic optimization, legal and institutional constraints on design, and project management. (SP) Hermanowicz.

113N. Ecological Engineering for Water Quality Improvement. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 110 or consent of instructor. Ecological engineering approaches for treating contaminated water using natural processes to improve water quality. Emphasis on contamination control and engineering approaches to understand the fundamental processes that govern the effectiveness of complex natural treatment systems. Applications include constructed wetlands, waste stabilization ponds, stormwater biofiltration, decentralized wastewater management, ecological sanitation. Laboratory sessions will consist of design and monitoring of laboratory and full-scale natural treatment systems, including a range of water quality measurements. (F) Nelson.

114. Environmental Microbiology. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A-1B. The scope of modern environmental engineering requires a fundamental knowledge of microbial processes with specific application to water, wastewater, and the environmental fate of pollutants. This course will cover basic microbial physiology, biochemistry, metabolism, growth energetics and kinetics, ecology, pathogenicity, and genetics for application to both engineered and natural environmental systems. (F) Alvarez-Cohen.

115. Water Chemistry. (3) Three hours of lecture per week. Prerequisites: Upper division or graduate standing in engineering or physical science, or consent of instructor. Review of equilibrium chemistry, the behavior of the chemical speciation of the water and the environmental fate of pollutants. This course will cover basic metallic physiochemistry, biochemistry, and the environmental chemistry of natural water bodies. The course will cover the fundamental principles of water chemistry and the application of these principles to the design and operation of water treatment and wastewater treatment processes. (F) Sadowski.

116. Environmental Aqueous Geochemistry. (3) Three hours of lecture per week. Prerequisites: 111 or equivalent. Chemical mechanisms of reactions controlling the fate of pollutants in the subsurface environment. Students will learn the principles of Geochemical pathways of detoxification. Chemical modeling of pollutant geochemistry. Also listed as Enviro Sci, Policy, and Management C128. (SP) Sposito.

120. Structural Engineering. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 60; 130 or 130N. (Note: Students taking 130N, instead of 130, may take it concurrently.) Introduction to design and analysis of structural systems. Loads and load combinations, determination of loads and redistribution of loads in structures, interaction of structural members in steel, reinforced concrete, and timber. Structural analysis theory, hand and computer analysis methods, validation of results from computer analysis. Application of design codes and standards to framing systems. (FSP) Moehle, Stojadinovic.


122. Design of Steel Structures. (2) Two hours of lecture and three hours of laboratory per week. Prerequisites: 120. Behavior and design of structural members and connections using Load and Resistance Factor Design (LRFD) methods: tension members, compression members, built-up and rolled beams and columns; typical shear and moment connections, welded and bolted. Behavior and characteristics of steel structural systems. A term project is assigned to conduct the design of a steel building structure including design resistance to earthquakes. Laboratory includes problem-solving sessions and actual testing of steel components. (FSP) Astaneh, Stojadinovic.

123. Design of Reinforced Concrete Structures. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 120. Introduction to materials and methods of reinforced concrete construction. Behavior and design of reinforced concrete beams and one-way slabs considering deflections, flexure, shear, and moment. Reinforcement of columns including slenderness effects; design of spread footings; design of lateral load resisting frames and walls for earthquake effects. Laboratory includes experimental testing of columns and beams. Laboratory emphasis is on the design of a structural design project in reinforced concrete. (FSP) Mahin, Mosalam.

124. Structural Design in Timber. (3) Three hours of lecture per week. Prerequisites: 120. Characteristics and properties of wood as a structural material; design and detailing of beams and columns and entire structures of wood. Topics include allowable stresses, design and detailing of solid sawn and glulam beams and columns, nailed and bolted connections, plywood diaphragms and shear walls. Case studies. (FSP) Filipovic, Armero.

130. Mechanics of Materials I. (3) Three hours of lecture per week. Prerequisites: 60 or Engineering 45 and Engineering 36. Introduction to the mechanics of deformable bodies, plastic and ultimate resistance of materials; stress and deformation analysis for bars, shafts, beams, and columns; combined stresses; energy methods; statically indeterminate systems; elastic stability and buckling. (FSP) Govindjee, Armero, Li.

130N. Mechanics of Structures. (3) Students will receive no credit for 130N after taking 130. Two hours of lecture and three hours of computer laboratory per week. Prerequisites: C30/Mechanical Engineering C85, and either 60 or Engineering 45.介绍 to the mechanics of deformable bodies, plastic and ultimate resistance of materials; stress and deformation analysis for bars, shafts, beams, and columns; combined stresses; energy methods; statically indeterminate systems; elastic stability and buckling. (FSP) Govindjee, Armero, Li.

131. Advanced Mechanics of Materials. (3) Three hours of lecture per week. Prerequisites: 130 or 130N. A senior-design project focusing on load-carrying members: stress, strain, elastic-stress strain relations, work and energy, boundary-value problems. Torsion. Bending of beams and plates: asymmetric bending, bending of thin-walled and sandwich beams, introduction to plate theory. Buckling of bars. (FSP) Armero, Li.

131C. Engineering Analysis Using the Finite Element Method. (3) Three hours of lecture and two hours of laboratory per week. Prerequisites: Engineering 3A, 10B, Math 51, C100A, C102A, C103A and C103B, C185A and C185B, or consent of instructor. This is an introductory course on the finite element method and is intended for seniors in engineering and applied science disciplines. The course covers the basic topics of finite element tech-
167. Engineering Project Management. (3) Students will receive 2 units of credit for 167 after taking Engineering 120. Three hours of lecture per week. Prerequisites: Concurrent or prerequisite junior standing. Principles of economics, decision making, and law applied to company and project management. Business ownership, liability and insurance, cash flow analysis, and management. Project management: life cycle, design-construction interface, contracts, estimating, scheduling, cost control. (F,SP) Ibsb, Tommeline

169A. Web-Based Systems for Engineering and Management. (1) Three hours of lecture for five weeks. Prerequisites: Junior, senior, or graduate standing; 169A recommended before taking 169B or 169C. A series of course modules on computer methods and tools for engineering and management, emphasizing the systems approach. Each 1-unit module will run for a full segment of the semester, and will cover theory and hands-on laboratory exercises. Students may take 1-3 modules per semester. Web design, use, and programming in engineering and management research and practice. The course is a combination of lectures, readings, hands-on exercises, home assignments, and a project. The project is an opportunity for students to develop a web-based application relevant to their own interests. (SP) Horvat, Tommeline

169B. Database Systems for Engineering and Management. (1) One and one-half hours of lecture for ten weeks. Prerequisites: Junior, senior, or graduate standing; 169A recommended before taking 169B or 169C. A series of course modules on computer methods and tools for engineering and management, emphasizing the systems approach. Each 1-unit module will run for a full segment of the semester and cover theory and hands-on laboratory exercises. Students may take 1-3 modules per semester. Theory, design, and applications of databases and database management systems in engineering and management research and practice. Programming in SQL. Programming using standard productivity software. The course is a combination of lectures, readings, hands-on exercises, homework assignments, and a project. The project is an opportunity for students to design and implement a database application suitable to their own interests. (SP) Horvat, Tommeline

169C. Visualization and Simulation for Engineering and Management. (1) One and one-half hours of lecture for ten weeks. Prerequisites: Junior, senior, or graduate standing; 169A recommended before taking 169B or 169C. A series of course modules on computer methods and tools for engineering and management, emphasizing the systems approach. Each 1-unit module will run for a full segment of the semester and cover theory and hands-on laboratory exercises. Students may take 1-3 modules per semester. Representation and modeling, visualization, use of different graphic formats, and simulation in engineering research and management practice. The course is a combination of lectures, readings, hands-on exercises, homework assignments, and a project. The project is an opportunity for students to develop a web-based application suitable to their own interests. (SP) Horvat, Tommeline

170. Introduction to Geological Engineering. (3) Three hours of lecture per week. Prerequisites: 70 or an introductory course in physical geology and upper division and graduate standing. Geological and Geoenvironmental Engineering C127. Physical exploration for structures in rock; properties and behavior of rock masses; rock slope stability; geotechnology and geoenvironmental applications. Site investigation techniques. Laboratory testing and evaluation of soil composition and properties. (F,SP) Bray, Pestana, Seed, Sitar

176. Waste Containment Systems. (3) Three hours of lecture per week. Prerequisites: 111 and 175 are recommended. Waste generation and disposal; types and characteristics of waste fate and transport; contamination of contaminants in soil; soil-water-plant interactions; engineering soil properties; use of earth and geosynthetic materials in site containment applications; principles, design, and construction of linear and leachate containment systems; application to landfills and design. (SP) Pestana

177. Foundation Engineering Design. (3) Three hours of lecture per week. Prerequisites: 120 and 175 or consent of instructor. Principles of foundation engineering design related to and design of retaining structures, shallow foundations, deep foundations, and slope stability. The course has a design project that addresses each of the major topic areas in an integrated fashion. (F) Bray, Seed


179. Pavement Engineering. (3) Three hours of lecture per week. Prerequisites: C30/ Mechanical Engineering C86 required. Formerly 179N. A first course in pavement engineering for highways and airfields, including failure mechanisms, design approaches, new pavement and rehabilitation design, effects of materials and construction on pavement performance. Emphasis on understanding of fundamental issues of pavement engineering and applications to evaluation and design for new pavements and maintenance and rehabilitation design, practical lab experience with asphalt concrete materials and tools used for evaluation and design of pavements, understanding of construction issues, and effects on pavement performance. Offered alternate years. (F,SP)

180. Design, Construction, Maintenance of Civil and Environmental Engineered Systems. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Senior standing in engineering with 100 credits in engineering; Engineering C145 and C145L. Study of the life cycle of buildings, as a basis for a selected topic or topics in civil engineering. Writen report required at the end of the semester. (F,SP) C178

181. Civil and Environmental Engineering Systems Analysis. (3) Two hours of lecture and three hours of computer laboratory per week. Prerequisites: 53, 54, 70, 171, 177, 179. This course is organized around real-world large-scale CEE systems problems. The problems provide the motivation for the study of quantitative tools that are used in planning or managing these systems. The problems include design of a public transportation system for an urban area, resource allocation for the maintenance of a water supply system, development of landfill replacement policy, design constraint for the construction of a concrete bridge deck, traffic signal control for an arterial street, scheduling in a large-scale construction project. (F) Bayen, Madanat, Sengupta

192. The Art and Science of Civil and Environmental Engineering Practice. (1) One hour of lecture per week. Prerequisites: Senior standing in civil and environmental engineering. A series of lectures by distinguished professionals designed to provide an appreciation of the role of science, technology, and the method of society in conceiving, creating, and managing the interplay of conflicting demands, and utilizing a variety of disciplines to produce unified and efficient systems. (SP) Staff

193. Engineering Risk Analysis. (3) Three hours of lecture per week. Prerequisites: Upper division mathematics and introduction to probability theory and statistics in planning, analysis, and design of civil engineering systems. Development of probabilistic models for risk and reliability evaluation. Occurrence models, extreme value distributions. Analysis of uncertainties. Introduction to Bayesian statistical decision theory and its application in engineering decision-making. (F) Der Kiureghian

H194. Honors Undergraduate Research. (3-4) Course may be repeated once for credit only. Three to four hours of independent study per week. Prerequisites: Upper division technical GPA 3.3, consent of instructor and faculty advisor. Supervised research. Students who have completed three or more upper division courses may pursue original research under the direction of one of the members of the staff. A final report or presentation is required. A maximum of 4 units of H194 may be used by fulfilling technical elective requirement. (F,SP) Staff

197. Field Studies in Civil Engineering. (1-4) Course may be repeated for credit. One to four hours of fieldwork per week. Must be taken on a passed/not passed basis. Supervised experience in off-campus compa- nies, government agencies, or consulting firms of interest to students. Students will complete a field study report. Supervised engineering. Written report required at the end of the semester. (F,SP) Staff

198. Directed Group Study for Advanced Under-graduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Senior standing in engineering. Group study of a selected topic or topics in civil engineering. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for a maximum of 4-units per semester. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and major adviser. Supervised independent study. (F,SP) Staff

Graduate Courses

200A. Environmental Fluid Mechanics. (3) Students will receive no credit for 200A after taking 105 before fall 1999. Three hours of lecture per week. Prerequisites: Mathematics C105 and C105L. Formerly 105. Fluid mechanics of the natural water and air
environment. Flux equation analyses; unsteady free surface flow; stratified flow; Navier-Stokes equations; boundary layers, jets and plumes; turbulence, Reynolds averages, turbulence modeling; mixing, diffusion, dispersion, and contaminant transport; geo-physical flows in atmosphere and ocean; steady and unsteady flow in porous media. Application to environmental flows in surface and groundwater and in lower atmosphere. (F) Chow, Stacey

200B. Numerical Methods for Environmental Flow Modeling. (3) Three hours of lecture per week. Prerequisites: 200A or consent of instructor. Formerly 204. Introduction to numerical methods with application to environmental flows (atmospheric, surface, and subsurface flows). Scalar advection/diffusion equations used to study finite difference schemes, numerical errors and stability. Methods introduced for solving Navier-Stokes equations and for turbulence modeling with Reynolds-averaging and large-eddy simulation. Basic programming skills required for hands-on exercises. (SP) Chow

200C. Transport and Mixing in the Environment. (3) Three hours of lecture per week. Prerequisites: 100, Math 53 and 54, or equivalent. Formerly 209A. Application of fluid mechanics to transport and mixing in the environment. Fundamentals of turbulence, turbulent diffusion, and shear dispersion in steady and oscillatory flows and the effects of stratification, evaporation to rivers, wetlands, lakes, estuaries, the coastal ocean, and the lower atmosphere. (F) Stacey

202A. Vadose Zone Hydrology. (3) Students will receive no credit for 202A after taking 202 before fall 1999. Three hours lecture per week. Prerequisites: 173 or equivalent. Formerly 202. Course addresses fundamental and practical issues in flow and transport phenomena in the vadose zone, which is the geologic media between the land surface and the regional water table. Theoretical framework for modeling these phenomena will be presented, followed by applications in the areas of ecology, drainage and irrigation, and contaminant transport. Hands-on applications using conceptual modeling and analysis of real-life problems and field experiments will be emphasized. (F) Rubin

202B. Geostatistics and Stochastic Hydrogeology. (3) Students will receive no credit if 290GS is completed before fall 1999. Three hours lecture per week. Prerequisites: 173 and Mathematics 53, 54 or equivalent, or consent of instructor. Formerly 290GS. Topics in analysis and modeling of spatial heterogeneity, estimation procedures, and flow and transport processes in environmental systems. Course emphasizes modeling of flow and transport under conditions of spatial heterogeneity of the hydrogeologic parameters. Fundamentals of the stochastic approach to spatial variability, known as geostatistics, and fundamental, as well as practical aspects, of flow and transport in heterogeneous formations. (SP) Rubin

203N. Surface Water Hydrology. (3) Three hours of lecture per week. Prerequisites: 103 or equivalent, or consent of instructor. Formerly 203. Course addresses topics of surface water hydrology, such as processes of water in the atmosphere, over land surface, and within soil; advanced representation and models for infiltration and evapotranspiration processes; partition of water and energy budgets at the land surface; snow and snowmelt processes; applications of remote sensing; flood and drought; and issues related to advanced hydrological modeling. Students will address practical problems and will learn how to use the current operational hydrologic forecasting model, and build hydrological models. (F) Staff

205B. Margins of Quality for Engineered Systems. (3) Three hours of lecture per week. Prerequisites: 121 or equivalent, or consent of instructor. Principles and engineering applications of technical processes for water and wastewater treatment and management. Quantitative overview of the engineering, economic, and policy aspects of water and environmental resources. (SP) Sedlak

210A. Control of Water-Related Pathogens. (3) Three hours of lecture per week. Prerequisites: Basic course in microbiology recommended; graduate standing or consent of instructor. Comprehensive strategies for the assessment and control of water-related human pathogens (disease-causing microorganisms). Transmission routes and life cycles of common and emerging organisms, conventional and new detection methods (based on molecular techniques), human and animal sources, fate and transport in the environment, treatment and disinfection, appropriate technology, regulatory approaches, water reuse. (SP) Alvare-Cohe

211A. Environmental Physical-Chemical Processes. (3) Three hours of lecture per week. Prerequisites: 111 or equivalent and coursework in aquatic chemistry, or consent of instructor. Fundamental concepts of physical and chemical processes that affect water quality in natural and engineered environmental systems. Focus is on developing a qualitative understanding of the mechanisms, as well as quantitative tools to describe, predict, and control the behavior of physical and chemical factors that impact hydraulics and reaction kinetics, gas transfer, adsorption, particle characteristics, flocculation, gravitational separations, filtration, membranes, and disinfection. (F) Nelson

211B. Environmental Biological Processes. (3) Three hours of lecture per week. Prerequisites: 111 or equivalent and coursework in microbiology, or consent of instructor. Fundamental concepts of biological processes that are important in natural and engineered environmental systems, especially those affecting water quality. Incorporates basic fundamentals of microbiology into a quantifiable engineering context. Application of engineering principles of environmental biological systems. Topics include the stoichiometry, energetics and kinetics of microbial reactions, suspended and biofilm processes, carbon and nitrogen cycling, and bioremediation applica- tions. (SP) Nelson

212. Water Quality Engineering. (3) Three hours of lecture per week. Prerequisites: 111 or consent of instructor. Principles and engineering applications of technical processes for water and wastewater treatment and management. Quantitative overview of the engineering, economic, and policy aspects of water and environmental resources. (SP) Sedlak

213. Watersheds and Water Quality. (3) Students will receive no credit for 213 after taking 290C. Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Overview of approaches used by engineers to preserve or improve water quality at the watershed scale. Characterization and measuring of nutrients, pathogens, and other contaminants in watersheds. Application of ecosystem modification and pollutant trading to enhance water quality. The course emphasizes recent case studies and analysis of practices for solving water quality problems. (SP) Sedlak

214. Environmental Analytical Chemistry. (1) One hour of lecture and six hours of laboratory per week. Prerequisites: 115 or equivalent. This course addresses the principles and practices used to quantify trace elements, organic pollutants, smog-forming gases, and nutrients in the environment. Students will use modern analytical techniques to quantify pollutants in air, sediments, soils, and water at sites of local interest. In addition, they will assess pollutant fate and transport in the environment and use existing technologies for remediating environmental contamination. During the final third of the course, students will implement independent projects to characterize pollutants at a site of their choice. (SP) Sedlak

215. Process Engineering Laboratory. (3) One hour of lecture and six hours of laboratory per week. Prerequisites: 115L, 117L (may be taken concurrently), 211, 212 (may be taken concurrently). Unit operations and processes for water and wastewater treatment. Analysis and laboratory techniques for physical, chemical, and biological treatment processes such as filtration, aeration, ion exchange, chemical treatment of wastewater, biological filters, activated sludge, and anaerobic digestion. (SP) Hermanowicz

217. Environmental Chemical Kinetics. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Quantitative overview of the characterization and control of air pollution problems. Summary of fundamental chemical and physical processes governing pollutant behavior. Analysis of key elements of the air pollution system: sources and control techniques, atmospheric transformation, atmospheric transport, modeling, and air quality management. (F) Nazaroff, Harley

218A. Air Quality Engineering. (3) Three hours of lecture per week. Prerequisites: 218A. Theory and applications of numerical modeling. Basic introductory concepts of atmospheric chemical transformation processes. Effects of uncertainty in model parameters on predictions. Review of atmospheric diffusion theory and its application to the modeling of air quality. (SP) Nazaroff

218C. Air Pollution Modeling. (3) Three hours of lecture per week. Prerequisites: 218A. Theory and applications of numerical modeling. Basic introductory concepts of atmospheric chemical transformation processes. Effects of uncertainty in model parameters on predictions. Review of atmospheric diffusion theory and its application to the modeling of air quality. (SP) Nazaroff


225. Dynamics of Structures. (3) Three hours of lecture per week. Prerequisites: 220 and 225. Design of structures to resist earthquakes and other dynamic excitations. Characterization of earthquakes for design. Development of design criteria for elastic and inelastic structural response. Introduction to nonlinear seismic analysis. Applications in earthquake, wind, and ocean engineering. Offered odd-numbered years. (F) Chopra


C231. Mechanics of Solids. (3) Students will receive no credit for 231 after taking 231A or 231B prior to fall 1992. Three hours of lecture per week. Prerequisites: 231A or equivalent. Basic the- ory of elasticity, and the crystal plasticity; (5) homogenization methodologies in evaluating overall material properties; composite material that includes the main meth- odologies of fresh and hardened concrete; strength, elas- tic properties, transverse shear effects in beams, plates, and shells, and their relationship to algorithmic stability; return mappings, closest-point projections and operator splits; applica- tion to metals, soils, concrete, and polymers and incorporation into finite element methods. Offered even-numbered years. (F) Armero, Govindjee

C236. Micromechanics. (3) Three hours of lecture per week. Prerequisites: C231, Materials Science and Engineering C237, or consent of instructor. Basic the- ories, analytical techniques, and mathematical foun- dations of micromechanics. It includes: (1) physical micromechanics, such as mathematical theory of dis- location, and cohesive fracture models; (2) micro- plasticity that includes Eshelby’s eigenstrain theory, non-comparative variational approach, and non-crack micro-cavity based damage theory; (3) theoretical composite material that includes the main meth- odologies in evaluating overall material properties; (4) meso-plasticity that includes meso-damage theory, and the crystal plasticity; (5) homogenization theory for materials with periodic structures. Also listed as Materials Science and Engineering C234. (SP) Govindjee, Li

C237. Computational Nano-mechanics. (3) Three hours of lecture per week and one hour of laboratory every two weeks. Prerequisites: Graduate standing or consent of instructor. Basic mathematics founda- tions, physical models, computational formulations and algorithms that can be used in simu- tations and modeling. They include: (1) cohesive finite element methods and discontinuous Galerkin methods; (2) meshfree methods, partition of unity methods, and the extended finite element methods (X-FEM); (3) quasicontinuum method; (4) molecular dynamics; (5) multiscale simulations; (6) Boltzmann method. Also listed as Nanoscale Science and Engineering C237. Offered in even years. (SP) Stojadinovic

C240. Civil Engineering Materials. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: An undergraduate course in civil engi- neering materials. Microstructures of concrete, wood, and steel. Differences and similarities in response to loading and environmental effects on these mater- ials, with emphasis on strength, elastic properties, creep, shrinkage, thermal stresses, and failure mech- anisms. (F) Monteiro, Ostergaard

241. Concrete Technology. (3) Three hours of lecture per week. Prerequisites: C231 or equivalent. Properties of fresh and hardened concrete; strength, elas- tic behavior, creep, shrinkage, and durability to chemical and physical attacks. New concrete-making materials and technologies in structural concrete tech- nology: high-strength, high-workability, and high-per- formance concrete; fiber-reinforced concrete, and roller-compacted concrete. (SP) Monteiro

244. Reinforced Concrete Structures. (3) Three hours of lecture per week. Prerequisites: 123. Analy- sis and design of reinforced concrete elements and systems that are common in building and bridge struc- tures, with an emphasis on seismic response and design; structural design methods; reinforced con- crete materials; concrete; line elements under axial, flexural, and shear loadings; prestressed concrete; and development; seismic design principles; earth- quake-resistant building frames, walls, diaphragms, and foundations; earthquake-resistant bridges. (F) Moehle

245. Behavior of Reinforced Concrete. (3) Three hours of lecture per week. Prerequisite: C232. Advanced topics in reinforced concrete construction, including inelastic flexural behavior; applications of plastic analysis to reinforced concrete frames; behav- ior in fire and torsion; yield-line and flexural behavior under cyclic and reversed loading; seismic rehabilitation. Offered even-numbered years. (SP) Moehle

246. Prestressed Concrete Structures. (3) Three hours of lecture per week. Prerequisites: 244 or con- sent of instructor. Behavior and design of statically determinate prestressed concrete structures under bending moment, shear, torsion and axial load effects. Design of continuous prestressed concrete beams, arches, slabs, and shells. Three-dimensional stress and deflections of prestressed concrete structures. Applications to the design and construction of bridges and buildings. (SP) Filipou, Moehle

247. Design of Steel and Composite Structures. (3) Three hours of lecture per week. Prerequisites: C231 or equivalent. Behavior and design of steel plate girders and shear walls. Design of bracings for sta- bility. Design of members subjected to torsion. Design of composite beams, columns, and beam-columns. Behavior and design of shear, semi-rigid and moment connections. Concepts used in design of gusset plates and base plates. Selection and design of steel and composite systems. (SP) Astaneh, Mahin

248. Behavior and Plastic Design of Steel Struc- tures. (3) Three hours of lecture per week. Prereq- uisites: 122 or equivalent. Topics related to inelastic behavior and plastic design of steel members and structures. Behavior of plastic hinge in members sub- jected to bending moment, axial force, shear, and their combinations. Collapse mechanisms of steel members and structures, such as moment frames and braced systems. Inelastic cyclic behavior of steel components. Introduction to fracture and fatigue of steel components. Offered even-numbered years. (F) Astaneh, Mahin, Stojadinovic

249. Experimental Methods in Structural Engi- neering. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing or consent of instructor. Topics include: (1) following topics: similitude laws, design of structural models, instrumentation and measurement techniques; use of computers to acquire data and control tests; pseudo-dynamic testing method; standard proof-test- ing for capacity assessment; non-destructive testing for condition assessment, and virtual experimentation. Upon completing this course, the students will be able to use experimental methods to investigate the behav- ior of a structure and to evaluate its condition. Offered odd-numbered years. (F) Stojadinovic, Mahin

C250N. Transportation Policy and Planning. (3) Three hours of lecture/discussion per week. Prerequisites: C290U, City Planning C213, or consent of instructor. Formerly C242-INSTR. Concepts of urban transportation planning; measuring the performance of transportation systems; the transportation policy for- mulation process; transportation finance, pricing, and investment issues; energy and air quality in transportation; specialized transportation for elderly and disabled people; innovations in transportation policy. Also listed as City and Regional Planning C217. (F,SP) Staff

251. Operation of Transportation Facilities. (3) Three hours of lecture per week. Prerequisites: Gradu- ate standing or consent of instructor. Management of vehicle flows and fleets. Traffic stream
properties and their measurement. Theories of traffic flow. Capacity analysis and queuing. Flow control and fleet scheduling. (F) Cassidy, Daganzo

titative and analytical methods for the management of traffic flow and transportation systems. (SP) Madanat

253. Intelligent Transportation Systems. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. The use of computer and communications technologies in intelligent transportation systems, their operation, and management. Technologies. Feasibility studies. Human factors and institutional issues. Case studies. In the laboratory, students carry out a term project under the supervision of an ITS researcher. (F) Sengupta, Skabardonis

254. Transportation Economics. (3) Three hours of lecture per week. Prerequisites: 252 or consent of instructor. Application of micro- and macro-economic concepts to transportation systems. Urban and inter-
governmental decision making. Proprietorship, project and program evaluation. Social welfare theory. Analysis of social cost. Investment analysis and pricing theory. Economic impact analysis. Role of economic analysis in decision making. (SP) Hansen, Kangas

255. Highway Traffic Operations. (3) Three hours of lecture per week. Prerequisites: 251 or consent of instructor. Operational planning and management of the highway transportation system. The highway system as a set of operating environments with each having its unique analytical framework. Major topics to be covered include policy and institutional issues, selection of strategies and tactics, evaluation of objectives, and measures of effectiveness. (SP) Cassidy

256. Logistics. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Vehicle routing. Transportation-inventory-production interrelationships, physical distribution networks, many-to-many networks (airports, postal, etc.), the role of transshipment and terminals in logistic systems for the transportation of goods and passengers, public and private transportation system design. Relevant methodologies. (F) Daganzo

259. Public Transportation Systems. (3) Three hours of lecture per week. Prerequisites: 251, 252, and 262 (or equivalent course). Analysis of mass transit systems, their operation, and management. Technology of transit vehicles and structures. Public policy and financing. (SP) Cassidy, Daganzo, Madanat

260. Air Transportation. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Nature of civil aviation; structure of the airline industry; aircraft characteristics and performance; navigation and air traffic control; airport planning and design; airline operations; aviation system planning. (F) Hansen, Kanaan

261. Infrastructure Systems Management. (3) Three hours of lecture per week. Prerequisites: 252 or equivalent, 262 or equivalent. Integrated treatment of quantization and optimization methods for the management of infrastructure facilities over their life. The focus of the course is on statistical modeling and numerical optimization methods and their application to managing systems and infrastructure, with an emphasis on transportation facilities. (SP) Madanat

262. Analysis of Transportation Data. (3) Three hours of session per week. Prerequisites: College calculus or consent of instructor. Probabilistic models in transportation. The use of field data. Data gathering techniques for avoiding errors, considerations of sam-
ple size. Experiment design for demand forecasting and transportation operations analysis. Analysis tech-
niques. (F) Daganzo, Hansen, Madanat

263. Operations of Transportation Terminals. (3) Three hours of session per week. Prerequisites: Graduate standing or consent of instructor. Characteristics of transportation facilities such as airports, seaports, railroad stations, airports, parking lots, etc. Methodologies used to study terminal operations and the manage-
ment of congestion. (Chromographs, input-output dia-
grams, simulation.) Studies illustrating the use of the methodologies for different modes. (SP) Daganzo

264. Behavioral Modeling for Engineering, Planning, and Policy Analysis. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Application of behavioral, behavioral science, and vision sci-
ence to preventing traffic collisions and subsequent injury. A systematic approach to traffic safety will be presented in the course, and will include: (1) human behavioral factors, (2) experience in planning and inter-
acting approaches to preventing traffic crashes and (2) vehicle and roadway designs as approaches to preventing injury once a collision has occurred. Implica-
tions of the three behavioral approaches for traffic safety will be discussed throughout the course. Also listed as Public Health C265. (SP) Ragland

267F. High-Tech Building and Industrial Con-
struction. (3) Three hours of lecture per week. Prere-
quisites: Graduate standing or consent of instructor. Introduce technologies including mechanical and elec-
trical systems that define functionality and affect life-
cycle costs of facilities. Focus on “smart” buildings and “high-tech” industrial projects. Describe terminol-
yogy, engineering design characteristics, components, and materials. Perform design calculations. Stress construction and installation methods. Discuss con-
temporary relationships and coordination requirements between owners, design firms, and general as well as specialty contractors. (F) Tommelein

268A. Lean Construction Concepts and Methods. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 267F. Introduce technologies including mechanical and electrical systems that design functionality and affect life-
cycle costs of facilities. Focus on “smart” buildings and “high-tech” industrial projects. Describe terminology, engineering design characteristics, components, and materials. Perform design calculations. Stress construction and installation methods. Discuss contemporary relationships and coordination requirements between owners, design firms, and general as well as specialty contractors. (SP) Tommelein

268H. Advanced Project Planning and Control. (3) Three hours of lecture per week. Prerequisites: 167. Cost and time estimating and controlling techniques for projects. Evaluation of labor, material, equipment, and subcontract resources, scheduling techniques, earned value concepts. Measuring project percent complete. Contractual risk allocation. Project investment anal-
ysis techniques. (F) Ibbott

268L. Business Fundamentals for Engineers. (3) Three hours of lecture per week. Prerequisites: 167 or equivalent. This course will provide a broad survey of management practices critical to starting and man-
aging a business in the construction industry. Topics that are covered include: the entre-
preneurial process; organizing and staffing; estab-
lishing and applying production control systems; management and management and organization. (SP) Ibbott

268K. Human and Organizational Factors: Qual-
ity and Reliability of Engineered Systems. (3) Three

R prefix=course satisfies R&AC requirement
R prefix=course satisfies American Cultures requirement
B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
†Recipient of Distinguished Teaching Award
*Professor of the Graduate School
Civil and Environmental Engineering / 185
hours of lecture/discussion per week. Prerequisites: Graduate standing. Formerly 290A. This course ad-
dresses human and organizational factors in devel-
oping sustainable cities and the reliability in engineered sys-
tems during their life-cycles (concept development through
decommissioning). Applications tested and
verified proactive, reactive, and interactive approaches
are developed and illustrated. (SP) Bray, Pesta-
na, Seed

270A. Advanced Soil Mechanics. (3) Three
hours of lecture per week. Prerequisites: 175 or con-
sent of instructor. Introduction to advanced topics in soil
mechanics, including state of stress, consolidation and
settlement analysis, shear strength of cohesionless and
cohesion-
ve soils, and slope stability analysis. (F) Bray, Pes-
tana, Seed

270B. Advanced Foundation Engineering. (3) Three
hours of lecture per week. Prerequisites: 270A or con-
sent of instructor. Advanced treatment of topics in
foundation engineering, including earth pressure the-
ories, design of earth retaining structures, bearing
capacity, ground improvement for foundation support,
analysis and design of shallow and deep foun-
dations. (SP) Bray, Pesta-
na, Seed

270L. Advanced GeoEngineering Testing and
Design. (3) One and one-half hours of lecture and
three hours of laboratory per week. Prerequisites:
270A or consent of instructor. Field and laboratory
testing of soils to support analysis and design of earth
structures, including cyclic, stress-strain, undisturbed,
vane shear, and vane shear, undisturbed sampling of soil,
and laboratory testing of soil, including advanced equip-
ment, instrumentation, data acquisition, and mea-
surement techniques. Consolidation and static and
cyclic triaxial tests, in-situ tests, and strain-controlled
and straint-control with pore pressure measurements.
Preparation of an engineering report. (SP) Bray, Pesta-
na, Riemer, Seed

271. Sensors and Signal Interpretation. (3) Three
hours of lecture per week. Prerequisites: Graduate
standing or consent of instructor. Introduction to the
fundamentals of sensor usage and signal pro-
cessing, and their application to civil systems. In
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Artificial intelligence, including AI, machine learning,
and deep learning. Formal procedures for determining
the feasibility of a specific project are introduced. (SP)
Bray, Pestana, Seed

275. Geotechnical Earthquake Engineering. (3)
Three hours of lecture per week. Prerequisites: 175 or
equivalent, or consent of instructor. Seismicity, influ-
ence of soil conditions on site response, seismic site
response analysis, evaluation and modelling of dyna-
mic soil properties, analysis of seismic soil-structure
interaction, evaluation of soil and structure response
and its consequences, seismic code provisions and
practice, seismic earth pressures, seismic slope
stability and deformation analysis, seismic safety of
dams and other embankments. (SP) Bray, Pesta-
na, Seed

281. Engineering Geology. (3) Two hours of lecture
and three hours of laboratory per week. Prerequisites:
A course in physical geography. Influence of geologic
origin and history on the engineering characteristics
of soils and rocks. Application of geography in explo-
ration, design, and construction of engineering works.
(F) Sitar

285C. Seismic Methods in Applied Geophysics. (3)
Students will receive no credit for 285C after taking

286. Digital Data Processing. (3) Students will
receive no credit for 286 after taking Mineral En-

gineering 240. Formerly Mineral Engineering 240. Con-

iderations for digital signal processing and data analysis.
Fourier Transforms. (F) Rector

289D. Earthquake Hazard Mitigation. (3) Three
hours of lecture per week. Prerequisites: Consent of in-
structor. Formerly Mineral Engineering 240. Considera-
tions for digital signal processing and data analysis.
Fourier Transforms. Three hours of lecture per week.
Prerequisites: Consent of in-
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tions for digital signal processing and data analysis.
Fourier Transforms. Three hours of lecture per week.
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Fourier Transforms. Three hours of lecture per week.
Prerequisites: Consent of instruc-
tor. Formerly Mineral Engineering 240. Considera-
tions for digital signal processing and data analysis.
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Written report required at the end of the semester. Course does not satisfy unit or residence requirements for a master’s or doctoral degree. (F,SP) Staff

298. Group Studies, Seminars, or Group Research. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Advanced studies in various subjects through special seminars on annually selected topics, informal group studies of special problems, or group research on comprehensive problems for analysis and experimentation. (F,SP) Staff

299. Individual Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Research or investigation in selected advanced subjects. (F,SP) Staff

601. Individual Study for Master’s Students. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive or language requirements in consultation with the major field adviser. Units may not be used to meet either unit or residence requirements. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisite: PhD, or assistant graduate student status. The course will include supervised teaching of laboratory sections of civil engineering courses, group analysis of videotapes, reciprocal classroom visitations, and an individual project. (F,SP) Staff

Classics
(College of Letters and Science)
Department Office: 7233 Drivelle Hall, (510) 642-4218 classics.berkeley.edu
Chair: Leslie V. Kurke, Ph.D.

Professors
Anthony Wilkes, Ph.D. Cambridge University, Greek language, literature, and religion
David J. Cohen (The Sidney and Margaret Ancker Professor in Philology) Ph.D. University of California, Los Angeles. Ancient rhetoric, classical Greek law, political and legal theory
Susanna Elm, D.Phil. Oxford University, History of late antiquity, Christianity
G. R. F. (John) Ferrari, Ph.D. Cambridge University. Ancient philosophy and literature
Crina Iuliana Petrescu, Ph.D. University of Pennsylvania. Greek and Roman art and archaeology
Leslie V. Kurke (The Richard and Rhoda Goldman Distinguished Professor, Professor of Classics and Comparative Literature) Ph.D. Princeton University. Greek literature and cultural history
Anthony A. Long (Johnstone Stone Professor of Literature), Ph.D. University of London. Ancient philosophy and literature
Donald J. Mastronarde (The Melppomene Distinguished Professor of Classical Languages and Literature), Ph.D. University of California, Greek and Roman language and culture
Andrew F. Stewart (The Nicholas C. Petris Professor in Greek Studies), Ph.D. Cambridge University. Greek sculpture, ancient art, archaeology
John K. Anderson (Emeritus), M.A., F.S.A.
William S. Anderson (Emeritus), Ph.D.
Henrich S. Gruen (Emeritus), Ph.D.
Ralph J. Hexter (Emeritus), Ph.D.
Trevor Murphy, Ph.D. California, Roman prose authors, ethnography
Ellen Oliensis, Ph.D. Yale University, Roman literature and culture
Dylan Sailor, Ph.D. University of California, Berkeley
Florence Verdiguier (Emerita), Ph.D.

Associate Professors
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Kathleen McCarthy, Ph.D. Princeton University, Roman literature and culture
Frank Bezner, Ph.D. University of Tübingen
Sumi Fujita, Ph.D.
Todd Hickey, Ph.D. University of Chicago. Greek and Egyptian papyrology, social and economic history, late antiquity
Nikolaos Papazarkadas, D.Phil. Oxford University. Director, Nemea Center for Classical Archaeology. Bronze Age, archaeology
Kim Shelton, Ph.D. University of Pennsylvania. Director, Nemea Center for Classical Archaeology. Bronze Age, archaeology

Assistant Professors
Leslie V. Kurke (The Richard and Rhoda Goldman Distinguished Professor, Professor of Classics and Comparative Literature) Ph.D. Princeton University. Greek literature and cultural history
Andrew F. Stewart (The Nicholas C. Petris Professor in Greek Studies), Ph.D. Cambridge University. Greek sculpture, ancient art, archaeology

Major Advisers: (Greek, Latin, Classical Languages, Classical Civilizations), Prof. Murphy, Prof. Fujita
Graduate Advisers: (Classics), Prof. Olienis; (Classical Archaeology), Prof. Shelton

Department Overview
The Department of Classics offers a complete undergraduate and graduate program in Greek and Latin, ancient philosophy and literature, ancient history, ancient culture (read in translation), philosophy, mythology, religion, social and political life and archaeology. The latter courses require no knowledge of Greek and Latin. The graduate courses, all of which are designated Classics, are advanced courses in Greek, Latin, and classical archaeology, and require knowledge of both languages.

The Majors
The Department of Classics offers four undergraduate majors: Greek, Latin, classical languages, and classical civilizations. Students considering any of these majors should consult with the departmental undergraduate adviser as early as possible.

Major in Classical Civilizations. Lists of courses approved to meet the requirements described below are available from the departmental office and on the web site.

(a) Prerequisites: Classics 10A and 10B (L&S R44 may be substituted for one but not both)
(b) Lower division requirements: Any two lower division courses in the Classics department (not including Classics 24), or courses from a selected list of courses in other departments. Go to the Classics web site for a list of acceptable courses.
(c) Area of concentration: Five courses (at least three must be in the Classics department) in one of the following areas of concentration: Classical Art and Archaeology (five upper division courses from a list of selected courses), Classical History and Culture (five upper division courses from a list of selected courses), Greek Language (five Greek courses including up to two lower division), Latin Language (five Latin courses including up to two lower division). Go to the Classics web site for a list of acceptable courses.

(d) Area of breadth: Two courses from any combination of upper and lower division offerings in a non-Greco-Roman pre-industrial culture (please consult with the Classics undergraduate adviser in selecting these courses).
(e) Two additional upper division courses from a list of selected courses without duplication from the other requirements; all students in this major must take Classics 130.

Major in Classical Languages. Elementary Greek (either Greek 1-2 or Greek 10 or the Greek Workshop, offered during summer session); Elementary Latin (either Latin 1-2 or Latin 10 or the Latin Workshop, offered during summer session); either Greek 40 or Latin 40 (may be taken concurrently with upper division courses); Greek 100, 101, and 102; Latin 100, 101, and 102; two courses chosen from Greek 115-123, Latin 115-140; Classics 10A and 10B. Majors are encouraged to take additional courses from the list of recommended courses available in the departmental office and on the web site.

Major in Greek. Elementary Greek (either Greek 1-2 or Greek 10 or the Greek Workshop, offered during summer session); Greek 40 (may be taken concurrently with upper division courses); Greek 100, 101, and 102; four courses chosen from Greek 115-123; Classics 10A and 10B (under exceptional circumstances, the undergraduate adviser may authorize substitution of Classics 100A for 10A, or 100B for 10B); one course from the list of recommended courses available in the departmental office and on the web site.

Major in Latin. Elementary Latin (either Latin 1-2 or Latin 10 or the Latin Workshop, offered during summer session); Latin 40 (may be taken concurrently with upper division courses); Latin 100, 101, and 102; four courses chosen from Latin 115-123; Classics 10A and 10B (under exceptional circumstances, the undergraduate adviser may authorize substitution of Classics 100A for 10A, or 100B for 10B); one course from the list of recommended courses available in the departmental office and on the web site.

Substitutions. Under exceptional circumstances the undergraduate adviser is empowered to authorize substitution of a more advanced reading course for any required reading course numbered 100 to 102, if such substitution is deemed necessary and advisable.

Honor Program. Restricted to majors with an overall University GPA of at least 3.3 and a GPA of at least 3.3 in the major. Consists of: (a) one of the major programs, with the added requirement for students in the Greek language and classical languages majors that at least one of the Senior Reading courses (Greek 115-123, Latin 115-140) must be in prose and at least one must be in poetry; (b) one semester of Greek H195 (for Greek or classical languages majors), Latin H195 (for Latin or classical languages majors), or Classics H195 (for classical civilizations majors); H195 consists of largely independent study, including the writing of a thesis; the project undertaken in this one-semester honors course (4 units) must be related to work completed in a previous upper division course in the Classics department. The thesis will be evaluated by an Honors Committee of three members; the written thesis is due on Monday of the 13th week of the semester and the committee will agree upon the level of Honors (Honors, High Honors, or Highest Honors) and the grade to be awarded no later than the Monday of examination week.

The Minors
Minor in Classical Civilization. Five upper division courses in the Classics department. Courses or seminars taught by Classics professors in other departments may be used with consultation with the undergraduate faculty adviser.

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

B prefix=language course for business majors
C prefix=language course for nonbusiness majors
H prefix=honors course
R prefix=course satisfies R&G requirement
LA suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Minor in Greek Studies. Five upper division courses in Greek language and related courses. At least three courses must be in the Greek language; up to two courses may be in courses with substantial content relevant to Greek literature, philosophy, culture, or history.

Minor in Latin Studies. Five upper division courses in Latin language and related courses. At least three courses must be in the Latin language; up to two courses may be in courses with substantial content relevant to Roman literature, philosophy, culture, or history.

Preparation for Graduate Study

To enter graduate study in Classics, students should complete the major in Classical Languages (or a satisfactory equivalent). Students are urged to supplement the requirements for the major with two or three senior reading courses (Greek 115-123, Latin 115-123). They are strongly advised to have an adequate reading knowledge of German and/or French or Italian before admission if possible. Juniors should take a pass-exam program and two of these languages for the Ph.D. degree and in one of them for the M.A. degree. Prospective graduate students are also encouraged to take advanced courses in Greek Composition (Classics 250, 260) since the graduate program requires demonstration of competence in prose composition. Note: The major in Classical Civilizations is not considered to be an adequate preparation for graduate study.

The Graduate Program

The Master of Arts degree may be taken in Classics (under Plan A: a program of 20 units of graduate and advanced undergraduate courses, and a series of examinations) or Classical Archaeology (under Plan B: a program of 24 units in graduate and advanced undergraduate courses, and a thesis).

The Doctor of Philosophy degree may be taken in Classics or Classical Archaeology. Whatever the graduate students’ principal interest—literature, history, philosophy, archaeology, or other subjects—they should take a broad program and acquaint themselves with every field of classical study. Students are advised to read widely in Greek and Latin authors of all kinds since both M.A. and Ph.D. regulations require an extensive knowledge of literature, history, and philosophy. They are also encouraged to take courses in epigraphy, comparative grammar, and Greek dialects when they are offered, since the interval between offerings of each can be three years. The graduate course offerings are varied from year to year, so that in a normal period of graduate study students may take courses in several fields and periods. Service for two semesters as a graduate student instructor is normally required as part of the Ph.D. program in classics. Most seminars may be taken for either a letter grade or 2 units of credit (a satisfactory/unsatisfactory basis), subject to some restrictions. For details of the M.A. and Ph.D. programs, consult the graduate adviser.

Undergraduate Courses

Classics

Courses that do not require a knowledge of Greek or Latin. (Classics 110 is an exception.) Courses in this group are designated Classics 10A, 10B, etc.

Lower Division Courses

10A. Introduction to Greek Civilization. (4) Three hours of lecture and one hour of discussion per week. Study of the major developments, achievements, and contradictions in Greek culture from the Bronze Age to the 4th century BCE. Key works of literature, history, and philosophy (read in English translation) will be examined in their political and social context, and their influence on subsequent developments in Western civilization. (F)

10B. Introduction to Roman Civilization. (4) Three hours of lecture per week; one hour of discussion may be added. Investigation of the major achievements and tensions in Roman culture from the Roman Republic to the High Empire. Key sources for literature, history, and material culture are studied in order to reveal Roman civilization in its political and social context. All materials are read in English. (F,SP)

17A. Introduction to the Archaeology of the Greek World. (4) Three hours of lecture and one hour of discussion per week. The physical remains of the Hellenistic and Roman worlds from 323 BCE to the advent of Christianity will be studied as a means of understanding the culture of ancient Greece. (F)

17B. Introduction to the Archaeology of the Late Greek and Roman World. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 17A is not prerequisite to 17B. The physical remains of the Hellenistic and Roman worlds from 323 BCE to the advent of Christianity will be studied as a means of understanding the culture of ancient Rome. (SP)

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-8 to be graded on a letter-grade basis. Sections 9-16 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP)

28. The Classical Myths. (4) Three hours of lecture and one hour of discussion per week. A study of Greek and Roman myths with emphasis on the universal meanings of myths. The interaction of myths, religion and philosophy as a source of understanding of ancient and present cultures. (F,SP)

29. Introduction to Greco-Roman Magic. (3) Three hours of lecture per week. Study of magical practices in the Greek and Roman worlds during the historical period (c. 750 BCE through 500 CE) as attested in literary, epigraphic, and material evidence. Attention is paid to the overall Mediterranean context and, in particular, Egyptian and Near Eastern influences on Greco-Roman traditions. Consideration is given to ways of analyzing and understanding magical practices, and the interaction of magic, religion, philosophy, and science. (F,SP)

34. Epic Poetry: Homer and Vergil. (4) Three hours of lecture per week. A discussion section may be added. Greek and Roman epics including the Iliad, Odyssey, Aeneid. (F,SP)

35. Greek Tragedy. (4) Three hours of lecture/dis- cussion per week. Greek tragedy with readings of Aeschylus, Sophocles, and Euripides. (F,SP)

36. Greek Philosophy. (4) Three hours of lecture/discussion per week. Introduction to the philosophies of Socrates, Plato, and Aristotle. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP)

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 are to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Study for Freshmen and Sophomores. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA. (F,SP)

99. Supervised Independent Study and Research. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA. (F,SP)

Upper Division Courses

100B. Latin Literature. (4) Three hours of lecture per week. Readings in Latin writers at the upper division level. (SP)

110. Ancient Metrics. (2) Two hours of lecture per week. Prerequisites: Greek 2 or 10. The principles of ancient metre of all types.

121. Ancient Religion. (4) Course may be repeated with consent of instructor as topic varies. Three hours of lecture per week. Topics may include study of the worship of gods in the ancient Greek world; cult practices and religious ideas; history and development of Roman religion.

124. Classical Poetics. (4) Three hours of lecture per week. Study of a selection (in English translation) of the most important works of classical antiquity that theorize about literature and of the works of some post-classical authors who wrote on similar themes under the influence of their classical predecessors. Authors studied may include Plato, Aristotle, Horace, Longinus, Augustine, Sidney, Pope, and Lessing. (F,SP)

130. Topics in Ancient Greek and Roman Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Upper division status. Topic to vary from year to year. No knowledge of Greek or Latin required; but provision will be made for students who wish to study some of the readings in the original language. Enrollment limited.

161. Gender, Sexuality, and Culture in the Ancient World. (4) Course may be repeated for credit as topic varies. Three hours of lecture/discussion per week. Study of topics in gender, feminism, and sexuality in ancient cultures. Topics vary from year to year. (F,SP)

163. Topics in Greek Philosophy. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 36 or Philosophy 254 or consent of instructor. The course is designed to deal with a single topic or selection of topics in Greek philosophy studied in translation. Possible topics are: the close study of one or more of Plato’s or Aristotle’s texts, Hellenistic philosophy, neo-Platonism.

170. Classical Archaeology. Three hours of lecture per week. (F,SP)

170A. Greek Vase Painting. (4)

170B. Greek Sculpture to 400 BCE. (4)

170C. Greek Architecture. (4)

170D. Roman Art and Architecture. (4)

175. Topography and Monuments. Three hours of lecture per week. (F,SP)

175A. Athens. (4)
180. Ancient Athletics. (4) Three hours of lecture and one hour of discussion per week. Study of ancient athletics and athletes including athletic training, facilities, competitions, and the role of athletics in Greek and Roman society.

H195. Honors Course in Classical Civilization. (4) Three hours of lecture per week per unit. Appropriate preparation and eligibility for admission to the honors program. Largely independent study for one semester building on work in a previous upper-division course used in fulfillment of the Classical Languages or Classical Civilizations major; the work will result in the writing of a thesis, to be evaluated by an honors committee of three members. Written thesis due the Monday of the 13th week of the semester in which the course is taken. (F,SP)

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to senior honor students. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to senior honor students. (F,SP)

Greek

Courses in this group are designated Greek 1, 2, etc.

Lower Division Courses

1. Elementary Greek. (4) Three hours of lecture per week. Beginners' course. (F,SP)

2. Elementary Greek. (4) Three hours of lecture per week. Prerequisites: 1 or equivalent. Beginners' course. (F,SP)

10. Intensive Elementary Greek. (8) Five hours of lecture per week. Beginners' course (intensive); equivalent to Greek 1-2. (SP)

40. Intermediate Greek Prose Composition. (4) Three hours of lecture per week. Prerequisites: 2, 10, or 15. Formerly Greek 40A. Development of skills in writing Greek prose. (F) 

98. Directed Group Study for Freshmen and Sophomores. (1-4) Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshman and sophomore. Prerequisite: 3.3 overall GPA. (F,SP)

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA. (F,SP)

Upper Division Courses

100. Plato and Attic Prose. (4) Three hours of lecture per week. Prerequisites: 2, 10, or 15. Readings from Plato's Apology or Crito, and from other Attic prose authors (e.g., Xenophon, Lysias); some review of grammar. (F)

101. Homer. (4) Three hours of lecture per week. Prerequisites: 1-2, 10, or 15. Selected readings in the Iliad or Odyssey. (SP)

102. Drama and Society. (4) Three hours of lecture per week. Prerequisites: 100. Formerly Greek 103. Reading of one Greek tragedy, and of further selections from the dramatists and/or prose literature of fifth-century Athens. (F)

105. The Greek New Testament. (4) Three hours of lecture per week. Prerequisites: 100. Formerly 125. Readings in the Gospels and/or Acts and/or Epistles.

115. Archaic Poetry. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 101 or 102. Readings in various Greek poets.

116. Greek Drama. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 101 or 102. Readings in various Greek poets.

117. Hellenistic Poets. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 101 or 102. Readings in various Hellenistic poets.

120. Herodotus. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 101 and either 101 or 102 or 105. Readings in Herodotus.

121. Thucydides. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 100 and either 101 or 102 or 105. Readings in Thucydides.

122. Attic Oratory. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 100 and either 101 or 102 or 105. Readings in oratory.

123. Plato and Aristotle. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Greek 100 and either 101 or 102 or 105. Readings in Plato and Aristotle.

125. Greek Literature of the Hellenistic and Imperial Periods. (4) Course may be repeated for credit with consent of instructor as topic varies. Three hours of lecture per week. Prerequisites: 100, and either 101, 102, or 105. Selected readings in Greek prose or poetry written by authors active during the Hellenistic Age and the Roman Empire (3rd century BCE to 6th century CE), (F,SP) Hickey

H195. Honors Course in Greek. (4) Three hours of work per week per unit. Prerequisites: Appropriate language preparation and eligibility for admission to the honors program. Largely independent study for one semester building on work in a previous upper-division course used in fulfillment of the Greek major; the work will result in the writing of a thesis, to be evaluated by an honors committee of three members. Written thesis due the Monday of the 13th week of the semester in which the course is taken. (F,SP)

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: 101 or 102 or 105.

101. Vergil. (4) Three hours of lecture per week. Prerequisites: 100. Selected readings from Vergil. (F,SP)

102. Lyric and Society. (4) Three hours of lecture per week. Prerequisites: 100. Reading in Catullus and Horace, and of short selections from prose literature of their periods. (SP)

115. Roman Drama. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 101 or 102. Readings in comedy (Plautus and/or Terence) and tragedy (Seneca).

116. Lucretius, Vergili's Georgics. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 101 or 102. Readings in De Rerum Natura and the Georgics.

117. Eclogae Poetry. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 101 or 102. Readings in Propertius, Tibullus, and Ovid.

119. Latin Epic. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101 or 102. Readings in Latin epic poetry.

120. Latin Prose to AD 14. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 100 and either 101 or 102 or 105. Readings in Latin prose authors such as Sallust, Cicero, Caeser, and Livy.

121. Tacitus. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 100 and either 101 or 102 or 140. Readings in Tacitus.

122. Post-Augustan Prose. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 100 and either 101 or 102 or 140. Readings in Seneca, the younger Pliny, and other prose writers.

140. Medieval Latin. (4) Three hours of lecture per week. Prerequisites: 100. Introduction to medieval Latin; readings in prose and poetry from Cassiodorus to the Italian literature of the 14th century, with emphasis on certain periods.

155A. Readings in Medieval Latin. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100 or 101 or 102 or 140, or consent of instructor. Study of selected from the early, high, or late medieval periods.

A. Focuses on prose.

B. Focuses on the poetic tradition.

H195. Honors Course in Latin. (4) Three hours of work per week per unit. Prerequisites: Appropriate language preparation and eligibility for admission to the

Latin Courses in this group are designated Latin 1, 2, 40, etc.
honors program. Largely independent study for one semester building on work in a previous upper-division course used in fulfillment of the Latin major; the work will result primarily in a term paper 230A-E. (F,SP)

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to senior honors students. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Restricted to senior honors students. (F,SP)

Graduate Courses

Classics

The proseminar (Classics 200) is prerequisite to all graduate study in the discipline. Appropriate course work in an undergraduate program does not apply to graduate courses that are not seminars proper (namely, Classics 210A-210B, 220A-220B, 222, 223, 250, 260), and it may be waived only with special permission of the graduate adviser.

Courses vary from year to year and are not necessarily offered in alternate years.

200. Proseminar. (4) Three hours of seminar per week. An introduction to the general literature of classical philology, to methods of research, and to textual criticism. (F)

201A-201B. Survey of Greek Literature. (4) Three hours of lecture per week. A sequence of readings and lectures on Greek literature. Offered alternate years. (F,SP)

202A-202B. Survey of Latin Literature. (4) Three hours of lecture per week. A sequence of readings and lectures on Latin literature. Offered alternate years. (F,SP)

203. Approaches to Classical Literature. (4) Three hours of seminar per week. A course to lay the foundations for an understanding of the discipline, its history and evolution, and the bibliography and research tools that are fundamental to Classical Archaeology. Subject areas include, but are not restricted to: archaeological methodology, the major sites, history, iconography, architecture, sculpture, painting, topography, epigraphy, geomorphology, numismatics. (F,SP)

204. Proseminar in Classical Archaeology. (2-4) Three hours of seminar per week. A course to introduce graduate students—both archaeologists and non-archaeologists—to the discipline of classical archaeology, history, and evolution, and its research tools and bibliography. Since it is both introductory and a requirement, it is not advisable for students to attempt to cover the entire discipline in one semester, after two introductory lectures on the history of the field, we will address a selection of topics that seems representative of its concerns. Also listed as History of Art C204. (SP) Hallett, Stewart

211. Archaic Greek Poetry. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Formerly 210C-D. Topics in iambic, elegiac, and lyric poets from Archilochus to Pindar.

213. Hellenistic Poetry. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Formerly 210E. Study of Callimachus, Theocritus, Apollonius, or other Hellenistic topics. Offered alternate years. (F,SP)

214. Greek Drama. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Formerly 210E. Study of Aeschylus, Sophocles, Euripides, Aristophanes, Menander, or other topics in Greek drama and dramatic theory.

218. Greek Philosophers. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Study of Plato, Aristotle, Hellenistic Philosophy, or other topics in ancient Greek philosophy through Plotinus. (F,SP)

219. Ancient Novel. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Study of Greek novels, Plotinus, Apuleius, or other topics in Greek Romance or novel. (F,SP)

220A-220B. Greek and Latin Epigraphy. (2,4,2,4) Three hours of lecture per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200.

A. Greek epigraphy
B. Latin epigraphy

222. Comparative and Historical Grammar of Greek. (2,4) Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Greek 101 and 102 or graduate standing. Survey of the evolution of Greek from its reconstructed ancestor, Proto-Indo-European, through its dialects as attested in antiquity. The development of Greek phonology, morphology, and syntax will be examined, and linguistic characteristics of a few literary and epigraphic dialects will be compared.

225. Papyrology. (2,4) Course may be repeated for credit. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. The course introduces students to papyrology. Its principal aim is to develop the skills necessary to edit papyrological texts. Sessions are devoted to the study of papyri, and linguistic characteristics of a few literary and epigraphic dialects will be compared.

226. Myth and Literature. (2,4) Course may be repeated for credit. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Study of Greek literature in its historical context. Largely independent study for one semester building on work in a previous upper-division course used in fulfillment of the Latin major; the work will result primarily in a term paper. (F)

237A. Study of Cicero, Seneca, or other topics in the history of Roman philosophy. (F)

238. Topics in Roman Literature, History, and Culture. (2,4) Course may be repeated for credit. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Select problems in Roman imperial literature and history from 69-235 CE.

241. Latin Literature of the Middle Ages. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Formerly 245A-B. Topics in Latin literature from the period 500-1300.

250. Advanced Greek Composition. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Greek 40 or equivalent. Advanced instruction in the writing of Greek prose.

260. Advanced Latin Composition. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Latin 40 or equivalent. Advanced instruction in the writing of Latin prose.

270. Seminar in Classical Archaeology. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Formerly 245A-B. Topics in Latin literature from the period 500-1300.

280. Special Study. (2-12) Course may be repeated for credit. Prerequisites: Completion of qualifying examination for the Ph.D. degree. Normally reserved for students writing the doctoral dissertation.

299. Special Study. (1-4) Course may be repeated for credit. Special individual study for qualified graduate students. (F,SP)

601. Individual Study for Master’s Candidates. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive or language requirements in consultation with the graduate adviser or personal adviser. Units may not be used to meet either unit or residence requirements for a master’s degree. (F,SP)

602. Individual Study for Doctoral Candidates. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the graduate adviser or personal adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree. (F,SP)

Professional Courses

300. Teaching of Classics: Methods and Problems. (3) Course may be repeated for credit. Four two-hour seminars per term plus individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or QSI status. Seminar in problems of teaching. Required for all new graduate student instructors. (F,SP)

302. Teaching Practicum. (3-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing.
Supervised teaching of lower division Latin courses or of discussion sections in Classics. Two semesters normally required for Ph.D. candidates. (F,SP)

Cognitive Science

(At College of Letters and Science)

Group Major Office: Undergraduate and Interdisciplinary Studies, 201 Campbell, (510) 642-6282
ls.berkeley.edu/cogsci

Director
John F. Khilström (Psychology)

Affiliated Faculty
Don Abramson (Education)
Manesh Agrawals (Computer Science)
Martin Banks (Optometry)
Roy L. Caldwell (Integrative Biology)
John Campbell (Philosophy)
Jose M. Carmona (Cognitive Science and Electrical Engineering)
Meda Chia (Gender and Women’s Studies)
Mark D’Esposito (Psychology)
Terrance Deacon (Anthropology)
Andrea Díezs (Education)
Hubert Dreyfus (Philosophy)
Randi A. Engle (Education)
Susan Ervin-Tripp (Psychology)
Jerome Feldman (Computer Science and Linguistics)
Charles Fillmore (Linguistics)
Branden Flicker (Philosophy)
Sussanne Gahl (Computer Science and Linguistics)
Robert J. Glucksie (Information)
Alison Grinik (Psychology)
Tom Griffiths (Cognitive Science and Psychology)
Erwin Haffner (Psychology)
William F. Hanks (Anthropology)
Carla L. Hedrick (Kinesio Science)
Richard Irvy (Psychology)
Lucia Jacobs (Psychology)
Paul Kay (Psychology)
Dan Klein (Computer Science)
Robert Klein (Psychology)
George Lakoff (Linguistics)
Tania Lombrozo (Psychology)
Jindra Malik (Computer Science)
Lori Markson (Psychology)
Sam Mohr (Psychology)
Srinivas Narayanan (Computer Science)
Alva Noë (Philosophy)
John Olaha (Linguistics)
Brenda O’Donovan (Psychology)
Stephen Palmer (Psychology)
Kaiping Peng (Psychology)
David E. Presti (Molecular and Cell Biology)
William Prinzmet (Psychology)
Michael Ramen (Education)
Richard Rhodes (Linguistics)
Lynn Robertson (Psychology)
Eleanor Rosch (Psychology)
Stuart Russell (Computer Science)
George Sánchez (Education)
Alan Schoenfeld (Education/Mathematics)
John Seafie (Philosophy)
Arthur Shimamura (Psychology)
Dan Sliden (Psychology)
Eve Sweetser (Linguistics/Celtic Studies)
Regina Vny (Computer Science)
Robe Willer (Sociology)
Loth Zadeh (Computer Science)

Student Affairs Officer: Carol Snow

Group Major in Cognitive Science

Cognitive science is the cross-disciplinary study of the structure and processes of human cognition and their computational simulation or modeling. The interdisciplinary program is designed to give students an understanding of questions dealing with human cognition, such as concept formation, visual perception, the acquisition and processing of natural language, and human reasoning and problem solving.

The program draws on relevant courses found within the fields of anthropology, biology, computer science, education, linguistics, philosophy, and psychology, as well as specially designed lower and upper division courses in the cognitive science. The structure of the major follows:

Prerequisites for the Major: Cognitive Science C1/Education C1, Computer Science 61A, and Mathematics 1A or 16A.

Lower Division Requirements: Mathematics 55 or Computer Science 70, and Molecular and Cell Biology 61 or 64.

Upper Division Core Requirements: Cognitive Science C100/Psychology C120 and Cognitive Science C101/Linguistics C105.

Distribution: All students must complete one course from each of the following six areas, plus one additional course from the areas:

• Cognitive Neuroscience: Psychology 117 or Psychology C127/Cognitive Science C127.
• Cognitive Psychology: Psychology 122; Psychology/Cognitive Science C124, C126; Psychology C129/Cognitive Science C120; Psychology 143 or 164.
• Computational Modeling: Computer Science 188 or Cognitive Science C131/Cognitive Science C132.
• Linguistics: Linguistics 100.
• Philosophy: Philosophy 122, 131, 132, 133, 135, or 136.
• Society, Culture, and Cognition: CogSci C103/History C192/Info C103/Media Studies C104/Cognitive Science C104/Linguistics C104; Economics C119; Anthropology 166; Education 140AC; Linguistics 150; Psychology 107, 164, 166AC; or Sociology 150.

All students must complete a minimum of 30 upper division units in cognitive science.

Concentration: Cognitive science students who have completed the major requirements may wish to add an optional concentration. Courses taken toward the required 30 upper division units may be applied toward a concentration if they fall into the appropriate categories described below:

Cognitive Neurosciences. Students concentrating in cognitive neuroscience must take Psychology 117 or Psychology/Cognitive Science C127; one course from the following: Molecular and Cell Biology 160, 163, or Integrative Biology 245/245L; and a third course. Additional courses include: Psychology 110, 111, 112, 114, 117; Cognitive Science/Psychology C127; Molecular and Cell Biology 160; 163, 164, 160L, 165, 166; Cognitive Science C110/Computer Science C182/Linguistics C109.

Cognitive Psychology. Students concentrating in cognitive psychology must take Psychology 101; one course from the core courses list: Psychology 122, 143; Psychology/Cognitive Science C124, C126; Psychology C129/Cognitive Science C102; Psychology 164; and a third course. Additional courses include Psychology 107, 111, 112, 121; Psychology/Cognitive Science C127; Psychology 142; Music 108; Education 224A, 227, 229A.

Computational Modeling. Students concentrating in computational modeling must take Computer Science 188 or Cognitive Science C131/Psychology C123 and two courses from the following list: Computer Science 61B; Computer Science C182; Cognitive Science C110/Linguistics C109; Computer Science 160, 170, 186, 280, 281, 287, 288, 289.

Linguistics. Students concentrating in linguistics must take Linguistics 100; other Linguistics 110 or 120, and a third course. Additional courses include Linguistics C104/Cognitive Science C104; Linguistics 106; Linguistics/Cognitive Science C107, C108; Linguistics/Cognitive Science C110/Computer Science C182; Linguistics/Cognitive Science C147; Linguistics 115, 121, 123, 158, 181; Psychology/Cognitive Science C124.

Philosophy. Students concentrating in philosophy must take Philosophy 132 and two other philosophy courses, at least one of which must be applied toward a concentration, and one in the philosophy of language. Additional courses include: Philosophy 129, 130, 140, 174, 175, 176, 178, 185, 186, 188; Cognitive Science/Linguistics C108.

Society, Culture, and Cognition. Students concentrating must take one course from the complete at least three courses, one of which must come from the core courses list: CogSci C103/History C192/Info C103/Media Studies C104, CogSci C104/Ling C104, Economics 119, Anthropology 166, Education 140AC, Linguistics 150, Psychology 107, Psychology 164, Psychology 166AC, Sociology 150. Additional courses include: Anthropology 160AC, 161, 163, 166; Information 142AC, 162, 182AC; Journalism 141; Linguistics 55AC, 130, 150, 151, 170; Linguistics/Slavic C139; Media Studies 10, 101, 102, 160, 170; Native American Studies 151; Philosophy 153; Political Science 161, 164A, 166A; Psychology 125AC, 162, 167AC; Rhetoric 103A, 105, 110, 170, 174, 177; Sociology 119, 156.

Honors Program. Cognitive science majors who wish to graduate with honors must have an overall GPA of 3.50 or higher in all work completed at the university and a 3.30 GPA or higher in the major program at the time of their graduation. In addition, they must complete a thesis of high quality, based upon independent study with a member of the cognitive science faculty and marked by satisfactory completion of at least three units of course H195A-H195B or 199.

Students interested in the major should consult with the student affairs officer in 359 Campbell Hall, (510) 642-6282.

Lower Division Courses

C1. Introduction to Cognitive Science. (4) Three hours of lecture and two hours of laboratory per week. Formerly 1. This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research from artificial intelligence, psychology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, thinking, remembering, vision, imagery, language, and consciousness. Sections will demonstrate some of the major methodologies. Also listed as Education C1. (F,SP)

84. Sophomore Seminar. (1-2) Course may be repeated for credit as topic varies. One hour per seminar per week for 15 units. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

98. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Seminar for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor. (F,SP) Staff

Upper Division Courses

C100. Basic Issues in Cognition. (3) Students will receive no credit for C120 after taking 120A. Two hours of lecture and one hour of discussion per week. Theoretical foundations and current controversies in cognitive science will be discussed. Basic issues in cognition—including perception, imagery, memory, categorization, thinking, judgment, and development—will be considered from the perspectives of philosophy, cognitive science, and psychology. Particular emphasis will be placed on the nature, implications, and limitations of the computational model of mind. Also listed as Psychology C120. (F)

C101. The Mind and Language. (4) Three hours of lecture and one hour of discussion per week. Conceptual systems and thought in the context of cognitive science. How language gives insight into
C102. Scientific Approaches to Consciousness. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: C1 or Psychology 1; or C100 or C105 or C100, Psychology C120B; Computer Science 61B; and consent of instructor. This course will examine the functional nature of human consciousness from the interdisciplinary perspective of cognitive science. It will cover topics from the philosophy of mind, cognitive linguistics, neuroscience, psychology, and computational models. Also listed as Psychology C129.

C103. History of Information. (3) Three hours of lecture per week. Prerequisites: Upper level undergraduates. This course explores the history of information and associated technologies, uncovering why we think of ours as “the information age.” We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we’ll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa? Also listed as Media Studies C192, Media Studies C104C, and Information C103. (F,SP) Duguid, Nanenberg

C108. The Challenge of Cognitive Science to Western Philosophy. (4) Three hours of lecture/discussion per week. Prerequisites: Some background in either cognitive science or philosophy. Three major results of cognitive science are inconsistent with most of Western philosophy: the embodiment of mind, the cognitive unconscious, and metaphorical thought. The course rethinks philosophy from a cognitive science perspective—how do the basic mechanisms of mind—frames, prototypes, radical categories, contested concepts, conceptual metaphor, metonymy, and blended frames of mind—impact our thinking? How do cognitive science and social science with the tools to analyze the framing, and logic behind, contemporary political discourse. Also listed as Psychology C129. (SP) Lakoff, Nunenberg

C110. The Neural Basis of Thought and Language. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Computer Science 61B, and C101, Linguistics C105 or C100, Psychology C120B; or consent of instructor. This is a course on the current status of interdisciplinary studies that seeks to answer the following questions: (1) How is it possible for the human brain, which is a highly structured network of neurons, to think and to learn, use, and understand language? (2) How are language and thought related to perception, motor control, and our other neural systems, including social cognition? (3) How do the computational, anthropological, and linguistic neural structures of the human brain shape the nature of thought and language? Much of the course will focus on the Neural Theory of Language (NTL), which will provide advanced students in cognitive science and computer science with the skills to develop computational models of human cognition, giving them the tools to solve challenging computational problems, as well as how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition—symbolic approaches, neural networks, and probability and statistics—considering the strengths and weaknesses of each. Also listed as Psychology C123.

C140. Quantitative Methods in Linguistics. (3) Three hours of lecture per week. Prerequisites: Linguistics 100 or graduate student standing. The goals of this course are a deepened understanding of linguistic research using quantitative analysis, and an ability to use such analyses in original research. A related goal is that of the course is to serve as an introduction to a powerful—and free—software package (called “R”) for statistical analysis and data visualization. We will be introduced to statistical techniques and the practical skills required to carry out statistical analysis. Also listed as Linguistics C160, (SP) Gahl.

C147. Language Disorders. (3) Three hours of lecture/discussion per week. Prerequisites: Linguistics 100. An introduction to experimental and theoretical research on language disorders, particularly acquired aphasia in adults. Major course themes include the relationship between normal and pathological language, and the usefulness of linguistic analysis for empirical research. Topics include phonetic, phonological, morphological, semantic, syntactic, and pragmatic aspects of language disorders in monolingual and multilingual speakers of typologically diverse languages. Also listed as Linguistics C147. (F,SP) Gahl.

190. Special Topics in Cognitive Science. (3) Course may be repeated for credit as topic varies. Two hours of seminar per week. Prerequisites: Consent of instructor. Selected topics in the study of Cognitive Science. (F,SP)

H195A-H195B. Special Study for Honors Candidates. (1-3-3) Course may be repeated for a maximum of 6 units. Individual conferences. Prerequisites: Open only to seniors and non-native speakers of English. This honors program. Independent study and preparation of an honors thesis under the supervision of a faculty member. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Supervision for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor. (F,SP)

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Open only to seniors and non-native speakers of English. This course is intended to serve as a course for students who are non-native speakers of English and who wish to work on their written English. The purpose of the course is to develop students’ ability to edit their own

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**College Writing Programs**

(Office of: 112 Wheeler Hall, (510) 642-5570 writing.berkeley.edu)

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**Program Overview**

College Writing Programs, a unit within the Undergraduate Division in the College of Letters and Science, offers courses that instruct students in writing in a variety of contexts.

**Lower Division Courses**

1. Grammar and Vocabulary of Written English. (2) Two hours of lecture/workshop per week. Must be taken on a passed/not passed basis. Prerequisites: Instructed reading of non-native speakers of English. This course is intended to serve as a course for students who are non-native speakers of English and who wish to work on their written English. The purpose of the course is to develop students’ ability to edit their own

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writing and to identify high frequency non-diacritic uses of English. Intensive, individualized practice will be provided for students from different language backgrounds. (F) Staff

R1A. Accelerated Reading and Composition. (6) Three hours of lecture/discussion and one hour of workshop per week. Prerequisites: Placement by UC Analytical Writing Placement Exam. Formerly 1A. An intensive, accelerated course satisfying concurrently the first half of the UC Entry-Level Writing requirement and the first half of Reading and Composition. Readings will include imaginative, expository and argumentative texts representative of the range of their intended audience. Self-grading features of the online curriculum will feature authors from diverse social and cultural backgrounds and perspectives. Instruction in writing a range of discourse forms and in the revision of papers. (F,SP) Staff

R4A. Reading and Composition. (4) Three hours of seminar/discussion per week. Prerequisites: Enrollment is limited to students who have satisfied the UC Entry-Level Writing requirement. This writing seminar satisfies the first half of the Reading and Composition requirement. The course is designed to offer students structured, sustained, and highly articulated practice in the recursive processes entailed in reading, critical analysis, and composing. Students will read five thematically related book-length texts, or the equivalent, drawn from a range of genres, in addition to various non-print sources. In response to these materials, they will craft several short pieces leading up to the longer essay/networks of exposition and argumentation. (F,SP) Staff

R4B. Reading, Composition, and Research. (4) Three hours of seminar/discussion per week. Prerequisites: Satisfaction of the UC Entry-Level Writing requirement and the first half of the Reading and Composition requirement. This writing seminar satisfies the second half of the Reading and Composition requirement. It is designed to offer students structured, sustained, and highly articulated practice in the recursive processes entailed in reading, critical analysis, and composing. In like manner, the seminar affords students guided practice through the stages involved in creating a research paper. Students will read five thematically related book-length texts, or the equivalent, drawn from a range of genres, in addition to various non-print sources. In response to these materials, they will craft several short pieces leading up to two longer essays—works of exposition and/or argumentation. Students will also draft a research paper, developing a research question, gathering, evaluating, and synthesizing information from texts and other sources. Elements of the research process, such as a proposal, an annotated bibliography, an abstract, a “work cited” list, and the like, will be submitted, along with the final report, in a research portfolio. Students will also complete a minimum of 50 pages of expository prose during the semester. (F,SP) Staff

10A. Introduction to Public Speaking. (3) Three hours of lecture/discussion per week. This is a strictly introductory course. It presumes no formal training of any kind on the part of the students. Emphasis will be on organization and delivery with goals of holding control over speaking habits and enunciation. Part of the intent of the course is to introduce students to the rudiments of the rhetorical theory which lies behind the practice of public speaking. (F,SP) Staff

10B. Advanced Public Speaking. (3) Three hours of lecture per week. Prerequisites: 10A or equivalent. This is an advanced course that presumes introductory training in public speaking. Emphasis will be on real-world speaking situations. The course combines both theory and practice: it incorporates extensive speaking performance and individualized critiques from instructor and students, as well as analysis of advanced speaking models, and it explores theories, speech genres, and rhetorical processes beyond those treated in the introductory course. The intent of the course is to advance students’ ability to deliver polished and informed public speeches adapted to a wide range of audiences and speaking situations. (F,SP) Staff

99. Supervised Independent Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One to four hours of tutorial per week. Must be taken on a pass/not passed basis. Prerequisites: Consent of instructor, lower division standing. Independent study in topics not covered by regularly scheduled courses. Student must initiate topic and present a written proposal. (F,SP) Staff

Upper Division Courses

108. Advanced Composition: New Technologies. (4) Two hours of lecture and two hours of laboratory per week. Prerequisites: Fulfillment of the Reading and Composition requirement up to and including 1B course may address issues of oral communication. This course offers an opportunity to explore the definition of text in a digital era. Students will read and create hypertext and other digital documents and analyze the effects of the “digital revolution” on information dissemination, education, and democracy. (SP) Staff

110. Advanced Composition: Challenging Writing. (4) Four hours of lecture per week. Prerequisites: Completion of reading and composition requirement (1A-1B) or consent of instructor. This writing workshop will offer students an opportunity to write essays and other nonfiction prose that speak both personally and politically to the issues and audiences they wish to address. The readings will focus on the rhetorical strategies of writers who have used the essay as a cultural form to challenge the norms of the time and place in which they live(d). (SP) Staff

151. Introduction to Principles of Professional Communication. (3) Three hours of lecture per week. Prerequisites: Reading and Composition 1A-1B, junior or senior standing. Formerly C151 and Business Administration C196W. This course introduces students to key principles and rhetorical strategies of writing in non-academic settings. Although the emphasis of this course is on practice, the primary focus will be on learning and practicing strategies to generate written documents in a business context. (F,SP) Cole

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One to four hours of tutorial per week. Must be taken on a pass/not passed basis. Prerequisites: Consent of instructor, upper division standing. Independent study in topics not covered by regularly scheduled courses. Student must initiate topic and present a written proposal. (F,SP) Staff

Professional Courses

300. Introduction to Theories and Practices of Teaching College Composition. (2) Two hours of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as GSI or consent of instructor. The course will focus on teaching philosophies, course design, instructional methods, and assessment issues in relation to teaching composition in a pluralistic setting. (F) Staff

Comparative Biochemistry

Chair: Jack Kirsch, Ph.D.

Professors
Tom Alber, Ph.D. (Molecular and Cell Biology and Lawrence Berkeley National Laboratory)
Bruce N. Ames, Ph.D. (Molecular and Cell Biology and Public Health)
George A. Brooks, Ph.D. (Biological Chemistry and Environmental Sciences, Policy, and Management)
Bob E. Buchanan, Ph.D. (Plant and Microbial Biology)
Maria Esteban, Ph.D. (Environmental Science, Policy, and Management)
Douglas S. Clark, Ph.D. (Chemical Engineering)
Benito D. de Lumen, Ph.D. (Nutritional Science and Toxicology)
Peter Duesberg, Ph.D. (Molecular and Cell Biology)
Gary L. Firestone, Ph.D. (Molecular and Cell Biology and Lawrence Berkeley National Laboratory)
Sung-Hou Kim, Ph.D. (Chemistry and Lawrence Berkeley National Laboratory)
Jack F. Kirsch, Ph.D. (Chemistry, Molecular and Cell Biology, and Lawrence Berkeley National Laboratory)
Daniel Khoshland, Ph.D. (Molecular and Cell Biology)
Isao Kubo, Ph.D. (Environmental Science, Policy, and Management, Nutritional Science and Toxicology)
Stuart M. Linn, Ph.D. (Molecular and Cell Biology)
Fenyong Liu, Ph.D. (Plant and Microbial Biology)
Anastasios Melis, Ph.D. (Plant and Microbial Biology)
George F. Sensabaugh, D.Crim. (Public Health)
Larry H. Stanford, Ph.D. (Molecular and Cell Biology)
Chris Vulpe, Ph.D. (Nutritional Science and Toxicology)

Graduate Courses: Fenyong Liu, Ph.D.; George Sensabaugh, Ph.D.; Barry Shane, Ph.D.

Program Overview

The interdisciplinary Graduate Group in Comparative Biochemistry addresses the Ph.D. and M.A. degrees for students interested in a biochemical and molecular approach to problems in the biological sciences. Students work under the supervision of faculty from diverse disciplines including molecular and cell biology; nutritional science and toxicology; molecular plant and microbial biology; chemistry; environmental science, policy, and management; public health; and research units, such as the Chemical Biodynamics Laboratory and Lawrence Berkeley National Laboratory.

For further information, please review the program web site at compbiochem.berkeley.edu.

Graduate Courses

294. Comparative Biochemistry Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. The objective of this course is to provide an overview of the research activities conducted by faculty members of the Graduate Group in Comparative Biochemistry. The lectures will cover a wide range of interdisciplinary topics reflecting the breadth of the Group. An important goal of this course is to enhance intellectual and collaborative interactions between students and faculty of the Graduate Group by increasing awareness of the range of research projects. The course will be conducted in a

R prefix=course satisfies R&C requirement
AG suffix=course satisfies American Cultures requirement

Chair: Jack Kirsch, Ph.D.

Recipient of Distinguished Teaching Award
Comparative Literature
(College of Letters and Science)

Department Office: 6125 Dwinelle Hall, (510) 642-2712 complt.berkeley.edu
Chair: Victoria Kahn, Ph.D.

Professors
Robert Altar, Ph.D. Harvard University, Modernism, Hebrew literature, modern and biblical (Near Eastern Studies, Jewish Studies)
Michael Andre Bernstein, D.Phil. Oxford University, Literary theory, history and literature, modernism, prosaics (English)
Judith Butler, Ph.D. Yale University, Philosophy, social and political thought, feminism theory (Rhetoric)
Anthony J. Cascieri, Ph.D. Harvard University, Literary theory, Golden Age literature (Spanish and Portuguese, Rhetoric)
Timothy Hamilton, Ph.D. Princeton University, Renaissance literature (French)
Victoria Kahn, Ph.D. Yale University, Renaissance literature, early modern literature (French, Italian, English)
Chana Kronfeld, Ph.D. University of California, Berkeley, Poetics, narrative theory, Hebrew, Yiddish (Near Eastern Studies, Jewish Studies)
Leslie V. Kurke, Ph.D. Princeton University, Greek literature and culture (Greek, Roman)
Eric O. Johannesson, Ph.D. Slavic Languages and Literatures (Scandinavian Emeritus)
Robert P. Hughes, Ph.D. University of Michigan, Slavic literature (Slavic Languages and Literatures, Near Eastern Studies, American Studies, and Portuguese)
Louise George Clubb, Ph.D. University of California, Berkeley, Chinese literature (East Asian Language and Cultures Emeritus)
Cyril Birch, Ph.D. University of California, Berkeley, Chinese literature and culture (East Asian Language and Cultures Emeritus, Classics Emeritus)
Française R. Masiello, Ph.D. University of Michigan, Spanish literature (English, French, Spanish)
Eric Naismith, Ph.D. University of California, Berkeley, Russian literature and culture (Slavic Languages and Literatures, Classics Emeritus)
Barbara Spackman, Ph.D. Yale University, Modern period, gender studies (French)
William S. Anderson (Classics Emeritus), Ph.D.
Cyril Birch (East Asian Language and Cultures Emeritus), Ph.D.
Louise George Clubb (Italian Studies Emerita), Ph.D.
Joseph J. Duggan (French Emeritus), Ph.D.
Ralph J. Hunter (Classics Emeritus), Ph.D.
Robert P. Hughes (Slavic Languages and Literatures Emeritus), Ph.D.
Eric O. Johannesson (Scandinavian Emeritus), Ph.D.
James T. Monroe (Near Eastern Studies Emeritus), Ph.D.
Michael N. Nagler (Classics Emeritus), Ph.D.

Assistant Professors
Karl Britto, Ph.D. Yale University, Francophone literature (French, African studies, Film)
Anne-Lise Francois, Ph.D. Princeton University, Modern comparative romanticisms, lyric poetry (English)
Kathleen McCarthy, Ph.D. Princeton University, Roman literature and culture, comedy (Classics)
Harsha Ram, Ph.D. Yale University, Russian literature, 20th-century Russian literature (Slavic Languages and Literature)
Miyami Sas, Ph.D. Yeshiva University, Modern Japanese, French and English literature, surrealism (Film)
Sophia Voigt, Ph.D. University of California, Chinese literature, gender studies, performance studies (East Asian Languages and Cultures)
Paul M. Bertrand Augier (French Emeritus), Ph.D.

Assistant Professors
Frank Bezner, Ph.D. University of Tübingen, Medieval Latin (Classics)
Robert Kaufman, Ph.D. University of California, Berkeley, Experimental poetics since Romanticism

Department Overview

The Department of Comparative Literature offers students an opportunity to develop their ability to read literary texts responsibly and critically; to study one literature in depth and another selectively; to acquire a broader sense of literary history and of literary traditions than the study of a single literature could furnish; to explore the contacts between written and other forms of expression; to acquaint themselves with some of the significant writings in the theory of literature; and to prepare themselves for methodical investigation of issues involving more than one literature.

Students must have fulfilled the UC Berkeley Entry-Level Writing requirement before taking any course in the Department of Comparative Literature. For further information, see the "College Writing Programs" section of this catalog.

Program for Study Abroad. While progressing toward the undergraduate degree in comparative literature, it is possible to earn up to 12 units of credit while studying abroad. Comparative literature majors are encouraged to participate in the Berkeley Programs for Study Abroad (EAP).

For information about these programs, contact an adviser in the Berkeley Programs for Study Abroad Office, 160 Stephens Hall #2202, Berkeley, CA 94720-2302; (510) 642-1356. Information is also available online at studyabroad.berkeley.edu.

The Major

The emphasis of the undergraduate major is on a broad understanding of literary and cultural phenomena rather than on specialized skills, although some specialized courses are among the options open to students. Recent graduates have entered graduate programs in a variety of disciplines, including medicine, law, and the social sciences. Others have gone on to jobs in a wide spectrum of activities.

The junior course (CL 100) is designed to introduce students to a variety of literary texts and critical and theoretical approaches, and to encourage them to formulate their own standards and responses. The senior course (CL 190), in turn, is designed to help students apply the information and the principles acquired in the junior course and undertake a study project involving several literary traditions. The requirements for the A.B. with a major in Comparative Literature are listed below.

Requirements: Lower Division. There are no lower division requirements beyond the completion of the Letters and Science Reading and Composition requirement and of appropriate work in at least one foreign language. In order to qualify for admission to upper division literature courses in that language. Two semesters from the Comparative Literature 41 series (Introduction to Literary Forms) and two other literature courses are recommended but not required. Students who might be interested in the A.B. with honors should note the special requirements of that program (see below).

Requirements: Upper Division. A minimum of 30 approved upper division units in literature, including: (1) a section of CL 100 in the junior year, a section of CL 190 in the senior year, and one Comparative Literature period course (the 151-155 series) for the major student's period of study; (2) at least four courses in the "major" literature, totaling not fewer than 12 units, with readings in the original language and selected to demonstrate broad historical coverage in that literature; (3) at least two courses in the "minor" literature totaling not fewer than 6 units, with readings in the original language and selected to fit the student's period of primary interest (e.g. classical, medieval, early modern, modern); and (4) at least one upper-division course in a classical literature, where works are read in translation or in the original from Greek, Latin, Classical Arabic, Biblical Hebrew, Sanskrit, or Classical Chinese. Note: Although only two literatures (for example, English-French) are required for the A.B. degree, students, especially those contemplating graduate study, may find it advantageous to work in three literatures.

Requirements: Honors. Students who have attained junior standing may be admitted to the honors program at the discretion of the honors program. Students must have accumulated at least an overall 3.3 GPA and at least a 3.55 GPA in the major, and at the time of graduation have accumulated at least a 3.65 GPA in the major and a 3.4 average in all, or in the original at the University; (2) have completed at least 8 upper division units in literature, including Comparative Literature 100 or the equivalent; and (3) are prepared to do upper division work in one vernacular foreign literature or one classical literature.

In addition to the requirements for the regular program outlined above, candidates for the A.B. with honors in Comparative Literature must: (1) demonstrate, through either examination or coursework, a sense of the historical development of their principal literature and (2) either write an honors thesis in Comparative Literature H195. Students interested in the honors program are urged to consult an adviser in the Department of Comparative Literature at their earliest opportunity.

Modern Greek

See 112A (Modern Greek language), 112B (Modern Greek composition). In addition, independent study topics under courses 170, 199, and 298 can be arranged with the instructor of 112A-112B to continue the study of modern Greek language and literature.

The Graduate Program

Students are admitted for postbaccalaureate work leading to the Ph.D. degree. This degree prepares you for teaching at the university level and for research in modern languages and literatures and is especially designed to encourage interdisciplinary research involving the study of literary and theoretical phenomena in several languages. The program is designed to provide students with the maximum of flexibility compatible with a rigorous course of study. The program emphasizes comprehensive historical and theoretical coverage of the field, with students designing an individual program of study that involves two additional literatures. Further information concerning the program should be sought from the office of graduate studies in the Department of Comparative Literature.

Undergraduate Preparation. Students interested in the graduate program in comparative literature at Berkeley are advised that strong undergraduate preparation in at least two foreign languages will speed up their work at the graduate level.

Requirements for the Ph.D. Degree. A minimum of 10 graduate courses is required for the Ph.D. degree, counted cumulatively from the beginning of graduate study at Berkeley. (Students entering with M.A.'s from other institutions will be able to count up to two M.A. courses toward the 10-course requirement.) Students must demonstrate competence in three languages other than English. Courses include Approaches to Comparative Literature, as well as graduate-level courses in the major and each of two minor literatures. These are intended to help prepare students for the Ph.D. written and oral qualifying examinations, which examine the three literatures in a comparative context and are based on reading lists and a statement of interests drawn up by the student in consultation with an adviser. Students are expected to complete these examinations no later than the fourth year of study and to devote the following three years to the development of a prospectus and the completion of a doctoral dissertation. Dissertation committees are ordinarily composed of members of the Department of Comparative Literature and other related departments.

Lower Division Courses

H1A-H18. English Composition in Connection with the Reading of World Literature. (4,4) Three hours of discussion per week and individual conferences. Prerequisites: (a) UC A2 Placement Exam, (b) a 3.5 GPA in high school English, (c) a reading knowledge of an ancient or modern foreign language, and (d) permission of the instructor. Expository writing based on analysis of selected masterpieces of ancient and modern literature. Limited to 10
41. Introduction to Literary Forms. Three hours of lecture per week. Comparative study of masterpieces of world literature.

41A. Forms of the Epic. (4)
41B. Forms of the Lyric. (4)
41C. Forms of the Novel. (F,SP)
41D. Forms of the Drama. (4)
41E. Forms of the Cinema. (4, F,SP)
41F. Forms of Literary Theory. (4)

50. Creative Writing in Comparative Literature. (3) Course may be repeated for credit. Three hours of lecture/discussion per week. A creative writing workshop for students who wish to study the theory and practice of writing as they work in a variety of forms and media.

60AC. Topics in the Literature of American Cultures. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. Study of the ethnic diversity of American literature. Topics will vary from semester to semester, but may include such themes as Cultures of the City, Gender, Race, Ethnicity in U.S. Literature, Race, and Identity. Students should consult the department's course bulletin well before the beginning of the semester for details. This course satisfies the American Cultures requirement. (F,SP)

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for four units. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

98. Directed Group Study for Freshmen and Sophomores. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing. Group study in a field that may not coincide with that of any regular course and must be specific enough to enable students to write essays based upon their studies.

Upper Division Courses

100. Introduction to Comparative Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: One upper division literature course in a foreign language or consent of the instructor. An introduction to problems of the comparative study of literature and culture. Emphasis on principles of comparative methods and analysis with focus on selected literary, critical, and theoretical texts. Enrollment limited to 15. Prerequisite: Readings in English and at least one foreign language. (F,SP) Staff

112A-112B. Modern Greek Language and Modern Greek Composition. (4,4) Three hours of lecture and one hour of discussion per week. Modern Greek pronunciation, vocabulary, grammar and syntax studied. The forms of writing (prose, poetry, drama) and the reading of literary texts as auxiliary to the acquisition of compositional skills. (F,SP)

113. Analyzing Greek Modernity. (4) Three hours of lecture per week. An investigation of some of the main dynamics that informed Greece's idea of itself as a modern nation emerging from the Ottoman Empire, while still contending with the legacy of its Classical and Byzantine past by looking to and placing into a context the relationships among the elements that have defined Greece's identity and modernity: language, literature, and culture. Kotzamanidou

120. The Biblical Tradition in Western Literature. (4) Three hours of lecture per week. Examination of selected aspects of the Biblical tradition and their relevance to the study of later literature.

R29. English Composition in Connection with Reading of World and French Literature. (5) Five hours of lecture per week. Prerequisites: Three years of high school French or two years with a B+ average. Formerly 2B. Expository writing done in connection with the reading of selected masterpieces of ancient and modern literature and the study of selected French texts read in the original. Course will prepare students for more advanced work in French. R2A satisfies the first half of the Reading and Composition requirement, and R2B satisfies the second half. (F,SP)

R3B. English Composition in Connection with Reading of World and Hispanic Literature. (5) Five hours of lecture per week. Prerequisites: Three years of high school Spanish or two years with a B+ average. Expository writing done in connection with the reading of selected masterpieces of ancient and modern literature and the study of selected Spanish texts read in the original. Course will help prepare students for more advanced work in Spanish. Satisfies the first half of the Reading and Composition Requirement.

20. Episodes in Literary Cultures. (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. Prerequisites: Completion of a 1A course or its equivalent is recommended but not required. An introductory level exploration of a specific author, work, theme or literary movement in an international context. Emphasis on the historical context in which the literature has played (and continues to play) a crucial role in the relationship between different cultures, traditions, and languages. Readings and topics to vary from semester to semester. (F)

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: Reading level expected to be at a letter grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-class setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

39. Freshman/Sophomore Seminar. (Course cross-listed course R prefix=course satisfies R&C requirement) Course may be repeated for credit as topic varies. One hour of seminar per week per unit. Section 1 to be graded on a passed/not passed basis. Sections 2-10 to be graded on a letter-grade basis. Freshman and sophomore seminars are designed to provide lower division students with an opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-class setting. These seminars are offered in all campus departments and topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP)

40. Women and Literature. (4) Course may be repeated once for credit if topic varies. Three hours of lecture per week. A study of women as portrayed in literature of all ages. Formerly 2A. Reading of selected masterpieces of ancient and modern literature. Formerly 1A. Prerequisites: Three hours of lecture per week. Optional, but recommended.

111. Introduction to Comparative Literature. Three hours of lecture per week. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15.

112A-112B. Modern Greek Language and Modern Greek Composition. Three hours of lecture and one hour of discussion per week. Modern Greek pronunciation, vocabulary, grammar and syntax studied. The forms of writing (prose, poetry, drama) and the reading of literary texts as auxiliary to the acquisition of compositional skills. (F,SP)

31. Analyzing Greek Modernity. Three hours of lecture per week. An investigation of some of the main dynamics that informed Greece’s idea of itself as a modern nation emerging from the Ottoman Empire, while still contending with the legacy of its Classical and Byzantine past by looking to and placing into a context the relationships among the elements that have defined Greece’s identity and modernity: language, literature, and culture. Kotzamanidou

120. The Biblical Tradition in Western Literature. Three hours of lecture per week. Examination of selected aspects of the Biblical tradition and their relevance to the study of later literature.

151. The Ancients and Their Literary Worlds. Three hours of lecture per week. Prerequisites: Upper division standing or consent of instructor. Graduate students who wish to take this course are required to go back to the original Hebrew, Greek, or Latin texts of the literature of the Biblical lands, and other ancient civilizations of the Mediterranean basin.

152. The Middle Ages. Three hours of lecture per week. Prerequisites: Upper division standing or consent of instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied. The literature of the Middle Ages.

153. The Renaissance. Three hours of lecture per week. Prerequisites: Upper division standing or permission of the instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied. European literature of the Renaissance.

154. Eighteenth- and 19th-Century Literature. Three hours of lecture per week. Prerequisites: Upper division standing or consent of instructor. Three units of lecture per week. Prerequisites: Upper division standing or permission of the instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied. Literature of the 18th and 19th centuries.

155. The Modern Period. Three course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Upper division standing or permission of the instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied. Literature of the 19th and 20th centuries.


170. Special Topics in Comparative Literature. Three course may be repeated for credit with different topic and consent of instructor. One to four hours of lecture per week. An independent studies course designed to fulfill a need intrinsic to the undergraduate major’s program which cannot otherwise be satisfied because it involves either a literature not covered in regularly scheduled course offerings or a special treatment of a particular literary work. (F,SP)

185. Gender, Sexuality, and Culture. Three course may be repeated for credit with consent of instructor. Three hours of lecture/discussion per week. Comparative study in gender, feminism, sexuality in various national literatures and cultures. Topics will vary from year to year.

190. Senior Seminar in Comparative Literature. Three course may be repeated for credit with consent of instructor. Three hours of lecture/discussion or three hours of seminar per week. Prerequisites: Senior standing; 8 units from the 151-160 series may be repeated for credit with consent of instructor. Senior seminar students wish to enroll must know at least one foreign language relevant to the materials studied. Substantial paper required. (F,SP) Staff

H195. Honors Course. Three course may be repeated for credit. Hours to be arranged. Prerequisites: Honors Standing, 8 units in upper division literature courses, including 100 or the equivalent, and knowledge of a vernacular language or a classical language. Preparation and writing of an honors thesis under the supervision of a member of the faculty. (F,SP) Staff

198. Directed Group Study. Three course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing. Group study in a field that may not coincide with that of any regular course and must be specific enough to enable students to write essays based upon their studies.
199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a pass/no pass basis. Enrollment restrictions apply.

Graduate Courses

The following graduate courses numbered 200 through 246 are offered at least 16 hours per week of effort, including time spent in class and outside reading and preparation.

200. Approaches to Comparative Literature. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: Admis-
sion to graduate standing in Comparative Literature. Lectures on literary theory, the study of criticism, and on the methods of comparative literary theory.

201. Proseminar. (1) One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Required for all first year graduate stu-
dents. This course is designed to give all new gradu-
ate students a broad view of the department's faculty, the courses they teach, and their fields of research. In addition, it will introduce students to some practical aspects of the graduate career, issues that pertain to specific fields of research, and questions currently being debated across the profession. The readings for the course will consist of copies of materials by the department's faculty.

202. Approaches to Genre. Three hours of lec-
ture/discussion per week. Prerequisites: Admission to graduate standing in Comparative Literature: advanced undergraduates may be admitted with the consent of the instructor. Application of the methods of Comparative Literature to the study of genres.

202A. Epic and Saga. (4)

202B. Lyric Poetry. (4)

202C. The Novel. (4)

210. Studies in Ancient Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in ancient Greek or Latin and familiarity with at least one modern foreign language. Comparative investigation of a topic in ancient literature between the eighth century B.C.E. and the fourth century C.E. with some attention to subsequent developments.

210. Studies in Medieval Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two medieval languages. Comparative inves-
tigation of a topic in literature and culture between the fifth and the 14th centuries.

215. Studies in Renaissance Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of a topic in Western literature in the Renaissance period.

221. Aesthetics as Critique. (4) Three hours of lecture per week. Formerly 221. A close reading and discussion of the major texts of modern aesthetics, from the 18th century to the present, with emphasis on the Continental tradition of Kant, Adorno, and Der-
rida. Also listed as Rhetoric C221.

223. Studies in the 19th Century. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of major themes in 19th-century literature and culture.

225. Studies in Symbolist and Modern Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of a topic in contemporary literature and culture.

227. Studies in Contemporary Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of a topic in contemporary literature and culture.

232. Studies in Near-Eastern-Western Literary Relations. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in a Near Eastern or a European language. Undergraduates may be admitted with consent of the instructor. Comparative investigation of a literary topic requiring the study of both Near Eastern and Western documents.

240. Studies in the Relations Between Literature and the Other Arts. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative study of the historical and systematic relations between literature and other arts such as the visual arts, music, and film.

250. Studies in Literary Theory. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of a topic in the theory of literature.

254. Studies in East-West Literary Relations. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages, one of which must be an East Asian language. Formerly C254. Comparative investigation of a literary topic requiring the study of both East Asian and Western documents.

256. The Craft of Critical Writing. (4) Three hours of lecture/discussion per week. The course will proceed chiefly through exercises in writing reviews and critical essays, with class discussion of the work that will be done by members of the seminar. Some analytic atten-
tion will also be devoted to existing models of critical prose. The class will deal with the minute details that make for effective criticism and also will consider larger issues of organization, critical focus, and audience.

258. Studies in Philosophy and Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of a topic in the relationship between philosophy and literature.

260. Problems in Literary Translation. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages or permission of the instructor. Theory and practice of translation. Students will complete a project in literary translation.

265. Gender, Sexuality, and Culture. (4) Three hours of lecture/discussion per week. Comparative investi-
gation of a topic related to the study of gender and/or sexuality in literature and culture.

266. Nationalism, Colonialism, and Culture. (4) Three hours of lecture/discussion per week. Prereq-
uisites: Preparation in two foreign languages. Compa-
rative investigation of a topic in ideology, politics, and identity and its relation to the formation of national, colonial, and/or post-colonial literatures and cultures.

270. Continuing Seminars. Two hours of discussion per week. Must be taken on a satisfactory/unsatis-
factory basis. Prerequisites: Restricted to students who have completed the M.A. and are studying for their qualifying examination in Comparative Litera-
ture. Discussion on problems of the literature of the period.

298. Special Study. (1-4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Graduate standing. Primarily for students engaged in pre-
liminary exploration of a restricted field, involving the writing of a report. May not be substituted for available seminars. (F,SP)

299. Directed Research. (1-12) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prereq-
uisites: Satisfactory completion of the Qualifying Exam-
ination. Writing of the doctoral dissertation. (F,SP)

601. Individual Study for Master's Students. (1-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Indi-
vidual study for the comprehensive or language requirements in consultation with the Graduate Adviser. Units may not be used to meet either unit or residence requirements for the master's degree. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Satisfactory completion of the master's examination. Individual study in consul-
tation with the Graduate Adviser intended to provide opportunity for qualified students to prepare them-
selves for the various exams required of candi-
dates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree. (F,SP)

3605. Methods of Teaching Literature and English Composition. (4) Three hours of lecture/discussion per week. Prerequisites: Appointment as a graduate student instructor or consent of instructor. Formerly 3604A-3605. Discussion of the theory and practice of teaching composition at the college level in a depart-
ment of comparative literature. (F)

Computer Science (Letters & Science)

(College of Letters and Science)

Computer Science Division Office: 387 Soda Hall
cs.berkeley.edu

Faculty and Courses

Computer Science faculty and courses are listed in the "Electrical Engineering and Computer Sci-
ences" section of this catalog.

Choice of College

There are two ways to study computer science at Berkeley. One is to be admitted to the EECS major in the College of Engineering (COE) as a freshman. Admission to the COE, however, is extremely competitive. The other way is to enter the College of Letters and Science and, after two years and successful completion of required courses, be admitted to the L&S computer science major. The EECS path is appropriate for people who are interested in a broader education. The L&S path is appropri-
ate for people who are interested in a broader edu-
cation in the sciences and arts, are prepared to consider majors other than CS, and/or are not sure at the time of application that they can gain admis-
sion to EECS.

Details about the computer science and engi-
neering program in the Department of Electrical Engineering and Computer Sciences may be found in the “Electrical Engineering and Computer Sciences” section in this catalog or at eecs.berkeley.edu.

Computer Science Major in the College of Letters and Science

Berkeley emphasizes the science of computer sci-
ence, which means much more than just computer programming. It includes the theory of computation, the design and analysis of algorithms, the archi-
tecture and logic design of computers, program-
mapping languages, compilers, operating systems, scientific computation, computer graphics, data-
bases, artificial intelligence and natural language processing. Our goal is to prepare students both for a possible research career and long-term technical leadership in industry. We must therefore look bey-
ond today's technology and give students the primary ideas and the learning skills that will pre-
pare them to teach themselves about tomorrow’s technology.
It is necessary to achieve an overall and technical GPA of 2.0 to be considered for the computer science major. The technical GPA (that is, the GPA in the lower division courses required for the major) is the main determining factor. Students with a technical GPA of 2.0 or above are routinely approved for the computer science major. Applications to the major should be submitted to the Computer Science Advising Office, 377 Soda Hall, during the semester in which the final technical prerequisites are being completed.

Transfer students admitted to Berkeley must, in addition, apply separately to the computer science major. Not all transfer students meet the stringent criteria expected for admission to the major. Therefore, we recommend that transfer students be prepared to pursue an alternative major at Berkeley. For further information, contact the Advising Office at (510)-642-7214.

Requirements for the Major

Lower Division Requirements: The following lower division courses are required for admission to the major:

(1) College-level calculus and linear algebra/ differential equations (Math 1A-1B, 54);
(2) Discrete Mathematics and Probability Theory (CS 70);
(3) Electronics (EE 42 or 40). It is strongly recommended that EE 43, a 1-unit laboratory course, be taken concurrently with EE 42;
(4) Computer science (CS 61A-61B-61C). (Note: CS 61B and 61C fulfill the same requirement as CS 61B and 61C; the material covered is the same and only the format differs.)

All of the above courses must be graded; none may be taken passed/not passed.

Upper Division Requirements: A total of 27 units of upper division courses including:

(1) Required courses: CS 162, 170;
(2) Breadth courses, choose two from the following: CS 150, 152, 160, 161, 164, 169, 184, 186, 188;
(3) Any two additional computer science courses;
(4) Technical electives: Any course from the approved list of non-CS technical electives found at eecs.berkeley.edu/cseg/tech_electives.

Note: Please check the following web site for updates and/or current information at eecs.berkeley.edu/csugrad.

Minimum Scholarship: All courses taken in satisfaction of the major requirements must be graded; none may be taken passed/not passed. A GPA of 2.0 in the upper division courses is required for graduation. The division monitors the progress of majors and expects them to maintain a 2.0 GPA from semester to semester.

Honors Program: Computer science majors with an overall GPA of 3.75 or above are eligible to apply to the EECS Honors Program. Information is available at eecs.berkeley.edu/Programs/honors.html.

Advanced Degree Program

The Five-Year Bachelor/Master’s Program in EECS (B.A./M.S or B.S./M.S.): The combined Bachelor/Master’s Program is designed to take outstanding EECS and CS L&S undergraduates immediately into an intense two-semester program conferring the Master of Science degree. This combined program promotes interdisciplinary focus and is best suited to those who are more “professionally oriented,” as opposed to those wishing to pursue a more traditional research-based and discipline-specialized advanced course of study. As such, a distinguishing feature of this five-year program is its emphasis upon extended study in interdisciplinary, though allied, technical fields, such as physics, biology, and statistics, or in professional disciplines, such as business, law, or public policy. The program is aptly entitled, “Educating Leaders for the Emerging Global Economy,” and reflects a growing need for those who are technically skilled and also possess an understanding of the business, legal, and social context of technology development and use.

Conferal of the degree requires either writing a thesis (Plan I) or reporting on a project (Plan II), as is required by our other master’s students.

Complete information is available at eecs.berkeley.edu/FiveYearMS.

Graduate Program

Graduate degree programs are available as preparation for a doctoral degree in the Master of Science and Doctor of Philosophy in computer science or engineering) and for careers in design, development, and management (Master of Engineering and Doctor of Engineering). For details on graduate programs and procedures see the “Electrical Engineering and Computer Sciences” section of this catalog.

Dance

(College of Letters and Science)

dance.berkeley.edu

For information about dance courses and curricula, see information listed in the “Theater, Dance, and Performance Studies” section of this catalog.

Demography

(College of Letters and Science)

Department Office: 2232 Piedmont Avenue, (510) 642-9800
demog.berkeley.edu

Chair: Michael Hout, Ph.D.
Professors
Michael Hout (Chair), Ph.D. Social demography, especially the role of demographic change (Sociology, Demography)
Ronald Lee, Ph.D. Economic, mathematical, and historical demography; development (Demography, Economics)
Kenneth Wachter, Ph.D. Mathematical demography, biometry, life tables, aging, censuses, simulation (Demography, Statistics)
Eugene A. Hayes, Ph.D., Ph.D. (Economics)

Associate Professors
Jennifer Johnson-Hanks, Ph.D. Fertility, nuptiality, education, social organization, qualitative methods, Africa (Demography, Sociology)
John H. Wilmott, Ph.D. Mortality and health, demographic methods, social demography (Demography)

Affiliated Faculty
Irene Bloemraad, Ph.D. (Sociology)
David Card, Ph.D. (Public Policy)
Ralph Catanoso, Ph.D. (Public Health)
Stefano Delavignette, Ph.D. (Economics)
Jan de Vries, Ph.D. (History)
Will Dow, Ph.D. (Public Health)

Graduate Adviser: Dr. John Wilmoth
Graduate Assistant: Monique Verrier

Department Overview

The Department of Demography offers an interdisciplinary training program leading to the M.A. and Ph.D. in demography. Demography is the systematic study of human population, a topic central to many presaging policy issues such as the economic development of Third World countries, population aging, the environment, health and mortality, family and household change, immigration, and ethnicity. Demography also has strong intellectual and institutional ties to other fields such as sociology, economics, social history, anthropology, biology, public health, and statistics. The program at Berkeley is one of the few in the United States granting graduate degrees in demography, rather than offering demography only as a field of specialization within some other department. This training strategy permits greater concentration and depth in demography, as well as program flexibility and breadth in related subjects. The program stresses both quantitative aspects of demography and demography in the context of social science theory.

No Undergraduate Major

Although there is no undergraduate major, seniors may take graduate courses with consent of the instructor. The department offers an undergraduate minor in demography, which is open to all interested undergraduates at Berkeley. (See next page.)

Graduate Programs

The master’s degree in demography is designed both as a final degree for those who wish to pursue a professional career at that level of training, and as a second degree for students earning a doctoral degree in demography or a related discipline. The basic coursework for the master’s program is required for the doctoral degree as well. Students already enrolled at a UC campus or at Stanford University are admissible to demography courses if they have completed the prerequisites. Students already enrolled in another graduate program at Berkeley who wish to earn a degree in demography may apply by executing a change or addition of major.

Students who have completed their master’s degree in demography may apply for admission to the doctoral program. Applications to the program are encouraged by the department’s advisers and are reviewed on an individual basis. The department’s advisers are available to discuss graduate study with prospective students.

Doctoral students in demography are required to have or to earn a master’s degree in an allied discipline.
Graduate Group in Sociology and Demography (Ph.D. Program)

See the listing under Sociology and Demography in this catalog or go to demog.berkeley.edu/acadprograms/socdemog.html.

Minor in Demography

UC students may complete one or more minor programs, normally in a field both academically and administratively distinct from their major.

Requirements: The undergraduate minor in demography provides an opportunity to combine a traditional major, typically in one of the social sciences, with specialized training in population studies. Students in the minor must complete, with a grade-point average of at least 2.0 (C), a total of five upper division courses. All courses applied to the minor must be taken for a letter grade. The courses are chosen as follows:

1. Three required courses: Demography 110, 126, and 175. Substitutions are not allowed.
2. One elective course from Public Health 140 or 142A; Economics 140 or 141; Sociology 105; Statistics 102, 131A, or 135. These courses are in statistical methods or vital statistics. Similar courses at least 3 units may be substituted with consent of the department.
3. One elective course from Demography 140, 145, 164, 165, 189; Economics 155, 157, or 171; History 111, 117, 119; 121, 125. These are courses in social science dealing with demographic factors. Similar courses at least 3 units may be substituted with consent of the department.

At least three of the five required courses must be completed at Berkeley. Note: According to University policy, no more than one course can be counted for both a student's major and minor.

For up-to-date information about course requirements, go to demog.berkeley.edu/acadprograms/undergraduates.html.

Lower Division Courses

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to introduce new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Upper Division Courses

110. Introduction to Population Analysis. (3) Three hours of lecture per week. Measures and methods of Demography. Life tables, fertility and nuptiality measures, age pyramids, population projection, measures of fertility control. (F) Wachter

125. Social Consequences of Population Dynamics. (4) Three hours of lecture, one hour of discussion per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Introduction to population issues and the field of demography, with emphasis on historical patterns of population growth and change during the industrial era. Topics covered include: the demographic transition, resource issues, economic development, the environment, population control, family planning, birth, 131A, 131B, gender, aging, international migration, and international migration. Also listed as Sociology C126.

145AC. The American Immigrant Experience. (4) Three hours of lecture, one hour of self-paced laboratory and one hour of optional discussion section per week. The history of the United States is the history of migration. The course covers the evolution of the American population from about 20,000 BC with the goal of understanding the interdependent roles of history and demography. As an American cultures class, special attention is given to the experiences of 18th- and 19th-century African and European immigrants and 20th-century Asian and Latin American immigrants. Two substantial laboratory assignments; faculty with a spreadsheet program is assumed. Also listed as History C139B. This course satisfies the American Cultures requirement. (SP) Mason

160. Special Topics in Demography. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Special topics in demography. Topics may include the demography of specific world regions, race and ethnicity, population and policy, population and environment. Oral and written examinations may be given. (F,SP) Staff

161W. Population Policy in the World of the 21st Century. (3) Three hours of lecture per week. Prerequisites: Admission to UC Berkeley Washington Program. The course combines two aims: to study and discuss international demographic issues which are shaping the new century, and, in the process, to familiarize students with an important way in which academic thinking is made available to government policy makers. The core readings for this course will be taken from recent national academy reports on global population issues. Along with discussions of the substantive issues, the emphasis will be on outside speakers invited from the Washington policy community. (SP) Wachter

164. Impact of Government Policies on Poor Children and Families. (4) Three hours of lecture per week. Prerequisites: Economics 155, 157, or 171; Sociology 126 or 127; or consent of instructor. The impact of policies of state intervention and public benefit programs on poor children and families. Introduction to child and family policy, and study of specific issue areas, such as income transfer programs, housing, health care, and child abuse. Also listed as Public Policy C164. (F) Mauldon

165. Family and Household in Comparative Perspective. (3) Three hours of lecture per week. Prerequisites: Sociology 1, 3, 3AC or consent of instructor. How are families and households organized around the world? Which aspects of household and family vary, and which are constant? What are the relationships between household and family on the one hand and the political, economic, or social patterns on the other? This course examines all of these questions, taking historical and contemporary examples from Africa, Asia, Europe, and the Americas. Also listed as Sociology C127. (F,SP) Johnson-Hanks

175. Economic Demography. (3) Three hours of lecture per week. Prerequisites: Economics 1 or 3AC or consent of instructor. Formerly 175. A general introduction to economic demography, addressing the following kinds of questions: What are the economic consequences of immigration? How are people able to afford the health, child care, and educational costs of the aging population? How have the size of the baby boom affected economic well-being? Why has fertility been high in the Third World countries? In industrial countries, why is international migration important? What are the economic and environmental consequences of rapid population growth? Also listed as Economics C175. (SP) Lee

196. Directed Group Study. (1-4) Course may be repeated for credit. One to three hours of tutorial per week. Must be taken on a passed/not passed basis. Prerequisites: 80 units; good academic standing. Undergraduate research by small groups. Enrollment is restricted by regulations governing 198 courses. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for credit. One to three hours of tutorial per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; Supervised independent study and research. (F,SP) Staff

Graduate Courses


211. Advanced Demographic Analysis. (4) Three hours of lecture per week. Prerequisites: 210, Population Studies 110, or consent of instructor. This course is designed to provide an overview of quantitative techniques commonly used in demography, economics, and other social sciences. Methods are described in both words and formulas, and students are encouraged to learn to move freely between verbal and mathematical representations of data. (SP) Wilmoth

212. Advanced Demographic Methods. (4) Three hours of seminar per week. Prerequisites: 210. Statistical analysis of demographic data, sensitivity testing of standard methods, development of analytic techniques, microsimulation. (SP) Wachter

213. Practical Computer Applications for Demographic Analysis. (2) Three hours of lecture/laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. An introductory course for first year graduate students and Ph.D. students. Covers Unix-based tools for manipulating computer programs and data files, and the R, SPLUS, and SAS statistical packages. The course will introduce the proportional hazard model and methods of testing it. The final project for this course is use of the 1995 Current Population Survey (fertility supplement) to compute Total Fertility Rates for the U.S. (F) Mason

215. Current Research Topics in Demography. (2) One hour lecture and two hours of laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 213. The goals of this course are to: (1) familiarize graduate students with active research projects in Demography and (2) improve research skills in R and Stata. Topics covered include demographic micro-simulation with SOCSIM, the Human Mortality Database, stochastic simulationforecasting, GIS for Demographers, and mortality forecasting. Two-thirds of class time will be spent in the computer laboratory. Students will present results. (SP) Staff

220. Human Fertility. (4) Three hours of lecture per week. This course offers a critical, graduate-level introduction to the social science of reproduction, drawing especially on models and theories in demography, sociology, and anthropology. Among the topics are parity specific control and the calculus of conscious choice, below-replacement fertility, and the new political economy of stratified reproduction. (F,SP) Johnson-Hanks

230. Human Mortality. (4) Three hours of lecture per week. Prerequisites: 210 or consent of instructor. Measurement of mortality by age and cause. Traditional, transitional, and modern mortality patterns in European and non-European areas. Current trends and differentials by age, sex, race, occupation and marital status. Consequences of mortality declines for fertility change and development. (F,SP) Wilmoth

236. Aging: Economic and Demographic Aspects. (3) Three hours of lecture per week. Prerequisites: Economics 1 or 2; formerly 175. A general introduction to economic demography, addressing the following kinds of questions: What are the economic consequences of immigration? How are people able to afford the health and pension costs of the aging population? How has the size of the baby boom affected its economic well-being? Why has fertility been high in the Third World countries? In industrial countries, why is international migration important? What are the economic and environmental consequences of rapid population growth? Also listed as Economics C225B. (SP) Lee

250. Mathematical Demography. (2-4) Three hours of lecture per week. Prerequisites: Consent of instructor. Systematic development of the mathematical theory of human population structure. Deterministic and stochastic models of population growth, stable population theory, demographic feedback models, demographic feedback models. Prerequisites: Calculus and linear algebra. Students are restricted to the use of standard methods. (SP) Lee

256. Fundamentals of Population Theory. (3) Three hours of lecture/discussion per week. This course
offers an introduction to the fundamentals of popula
tion theory through the close reading of central texts 
from Condorect and Malthus to Foucault. These are 
the thinkers whose work underpins the contemporary 
social philosophy of human population. Throughout 
the course, we will focus on three analytic issues that 
recur in the readings in different forms: (1) method-
ological individualism and holism, (2) probability and 
the nature of rates, and (3) causation. (F.SP) Staff

260. Special Topics in Demography Seminar. (4) 
Course may be repeated for credit as topic varies. 
Two hours of seminar meetings/discussions, includ-
ing lectures by special invited speakers, per week. 
Prerequisites: Consent of instructor. Special topics in 
demography, such as anthropological and evolution-
ary approaches, kinship and family structure, race 
and ethnicity, and similar specialized or new topics 
in the field. Offered to qualified graduate students. 
Seminar will be offered according to student demand. (F.SP) Staff

C275A. Economic Demography. (3) Two hours 
of lecture per week. Economic consequences of dem-
ographic change in developing and developed coun-
tries including capital formation, labor markets, and 
tergenerational transfers. Economic determinants of 
fertility, mortality and migration. Also listed as Eco-
nomics C275A. (F.SP) Lee

296. Advanced Research Techniques. (4) Course 
may be repeated for credit. Three hours of seminar 
per week. Prerequisites: 295 and consent of instructor. 
Problems in data acquisition, analysis, and presen-
tation of technical demographic research. Required 
of graduate students in the Ph.D. program in Demog-
raphy. (F.SP) Staff

298. Directed Reading. (1-12) Course may be 
repeated for credit. Prerequisites: Consent of instruc-
tor. Intended to provide directed reading in subject 
matter not covered in available course offerings. (F.SP) Staff

299. Directed Research. (1-12) Course may be 
repeated for credit. Prerequisites: Consent of instruc-
tor, with permission of the department. Intended to 
prepare students to do necessary work to prepare 
theses and theses for language examinations, and the 
comprehensive examination. (F.SP) Staff

601. Individual Study. (1-8) Course may be 
repeated for credit. Must be taken on a satisfac-
tory/unsatisfactory basis. Prerequisites: Graduate 
standing. Individual study, in consultation with the 
graduate adviser, intended for qualified students to do necessary work to prepare themselves for language examinations, and the comprehensive examination. (F.SP) Staff

602. Individual Study for Doctoral Students. (1-8) 
Course may be repeated for credit. Must be taken on 
a satisfactory/unsatisfactory basis. Prerequisites: For 
qualified graduate students. Individual study in con-
sultation with the major field adviser, intended to 
provide students with the prescribed work required to 
prepare themselves for the various examinations required of candidates for the Ph.D. (F.SP) Staff

Professional Courses

301. GSI Training. (1-6) Two hours of seminar or pri-
vate consultation with instructor. Must be taken on a 
satisfactory/unsatisfactory basis. Prerequisites: App-
pointment as a graduate student instructor in depart-
ment. Course credit for experience gained in academic teaching through employment as a graduate student instructor. (F.SP) Staff

Development Studies

Development Studies (College of Letters and Science)

Group Major Office: International and Area Studies, 101 Stephens Hall, iastp@berkeley.edu, (510) 642-4466

Chairs: Michael Watts and Gillian Hart

Major Advisers:
Miguel A. Altieri (Environmental Science, Policy and Management)
Pranab K. Bardhan (Economics)
Ruth Collier (Political Science)
Alain de Janvry (Agricultural and Resource Economics)
Peter Evans (Sociology)
Louise Fortmann (Environmental Science, Policy, and Management)
Thomas B. Gold (Environmental Science, Policy, and Management)
Gillian Hart (Geography)
Nancy Peluso (Environmental Science, Policy, and Management)
Pranab K. Bardhan (Economics)
Jeff Romm (Environmental Science, Policy, and Management)
Michael J. Watts (Geography)

Program in Development Studies

Development studies is the study of the role and 
form of markets, states, and civil society in the 
eradication of mass poverty and the improvement of 
human well-being, both historically and con-
temporaneously. In the global south. The prob-
lems of development are urgent, massive, and 
enormously complex, and they transcend the 
boundaries of conventional academic disciplines. 
As Nobel Laureate Amartya Sen has put it, group-
ment is about the enhancement of human capa-
bilities and the maximization of human choices 
what he calls "development as freedom." To 
study comparative development effectiveness, one 
must draw upon many disciplines and construc-
t a balanced understanding of historical and con-
temporary processes. In the 21st century, develop-
ment and the challenges confronting post-colonial 
states are inseparable from the configuration 
of forces that are customarily called "globalization," 
that is to say, the transformation of the spatial 
organization of social relations and transactions 
generating transcontinental and inter-regional flows 
and networks of activity. While development stud-
i es focuses on the global aspect of current devel-
opment problems, the major seeks to root student 
knowledge in the profoundly local and regional 
character of development trajectories and prac-
tice. Thus, studying development as a social, eco-
omic and political transformation requires a 
blending of knowledge and perspectives from pol-
tical science, economics, sociology, psychology, 
antropology, geography, history, and resource and 
environmental science.

Development studies majors are required to take 
core coursework and theory and build upon this 
core with coursework focusing on: (1) a disci-
pline, (2) a geographic area, and (3) methodol-
ical skills appropriate to the student’s primary 
disciplinary interest. The DS chairs, participating 
faculty members from several departments and 
programs, and advisers in the International and 
Area Studies Teaching Program aid students in 
organizing an undergraduate plan of study.

The Group Major

Declaring a major in development studies follows 
guidelines established by the College of Letters 
and Science. Students wishing to declare a group 
major in development studies: (1) must have com-
pleted DS 10 (fall semester only) and Econ 1 or 2 
with grades of C or better; (2) must have attended 
a major declaration workshop; (3) are encouraged 
to have completed at least two semesters of col-
lege-level foreign language or the equivalent; and 
(4) must not be in their final semester of under-
graduate work.

Students are reminded that (1) no coursework for 
the major may be taken on a passed/not passed 
basis, and (2) no course may be used to satisfy 
more than one major requirement.

Minor. Development studies does not offer a minor 
program. However, other minor programs taken 
in conjunction with development studies are 
encouraged. No more than two upper division 
course can be used to satisfy requirements in both 
a major and a minor.

Double Majors. Double majors must be approved 
by the dean of the College of Letters and Science 
and no more than two upper division courses may 
be used to satisfy requirements in both majors.

Courses Outside the College of Letters and Science. No more than three courses outside the 
College of Letters and Science may be used to ful-
fill group major requirements.

Study Abroad. The use of coursework taken at 
institutions outside the United States to fulfill major 
requirements is restricted to the equivalent of 
three semester-length upper division courses. 
Courses taken to fulfill the foreign language 
requirement for the group major are not included in 
this restriction.

Transfer Courses. A maximum of three upper 
division courses taken at other institutions (inc lud-
ing those of the UC Education Abroad Program) 
may be transferred into the major. These courses 
will be accepted only if they fulfill the same require-
ments as those required for upper division courses (regardless of unit value) 
and must be validated by the Office of Under-
graduate Admissions and approved by an IAS 
adviser. Courses used to fulfill foreign language 
and lower division requirements are not included in 
this restriction but must be approved by an adviser.

Honor Program. To graduate with honors from 
the group major in development studies, students 
must enroll in the two-semester honors seminar, 
IAS H102 (fall only) and DS H195 (spring only), 
and must obtain GPA of 3.6 in the major and 3.5 in 
overall university coursework. The honors semi-
nar (DS H195) is taken in addition to a student’s 
regular coursework for fulfilling requirements for 
the major and culminates in the writing of a senior 
thesis. The DS H195 instructor and at least one 
other faculty member, selected by the student in 
consultation with the instructor, will supervise the 
thesis. Eligibility for participating in the 
honors program is determined in the IAS office. 
Note: There is no guarantee that students accepted 
into the honors program will graduate with honors. 
Honors recommendations are based on a student’s 
overall GPA and are based on a number of factors, includ-
ing (but not limited to) major GPA, grades received 
for IAS H102 and DS H195, and faculty adviser 
 recommendations.

Course Plan

There is considerable flexibility within DS for stu-
dents to construct programs appropriate to their 
specific intellectual and geographic interests. 
There is, however, a structure built into the major 
and minimal core course requirements that must be 
met. This structure is designed to provide all DS 
students with a common knowledge base and intel-
lectual reference points.

The program begins with lower division courses 
centered around DS 10, Introduction to Devel-
opment Studies, which provides a basic factual, 
theoretical, and methodological grounding in devel-
opment studies. There is also a language profi-
ciency requirement which, depending on one’s 
language skills, could require language courses.

The upper division courses include DS 100, History 
of Development and Underdevelopment; five addi-
tional courses arranged to meet disciplinary, devel-
opment, and methodological requirements; and 
three area courses. The area courses must focus 
on a geographic region (Latin America, South Asia, 
Africa, etc.) and provide a working knowledge of
the culture, history, and political economy of a region in the developing world.

**Foreign Language Requirement**

All DS students must be able to demonstrate proficiency in any single modern language (other than English) equivalent to four college-level semesters.

There are three ways students can fulfill the four-semester language requirement, depending on their backgrounds and abilities:

1. **Through coursework.** Any combination of high school courses, summer sessions, community college or university level study abroad programs can satisfy the language requirement. At a minimum, students must complete the fourth semester of a language at the B- level or better.
2. **With a proficiency exam.** Students whose language skills are at fourth semester level or beyond and who do not wish to take courses can opt to test out of this requirement. However, not all of Berkeley's language department offices offer proficiency exams. See a DS adviser concerning language study abroad.
3. **Being a non-native English speaker.** Non-native speakers of English may use their native language to satisfy the language requirement.

**Non-native English majors**

Non-native English speakers do not have to demonstrate proficiency in any single modern language (other than English) equivalent to four college-level semesters. DS 10 is a critical course since it provides a background against which to understand and assess theoretičal interpretations of development. The course will be structured around three critical concepts: land, labor, and work. Also listed as Geography C32. (F) Watts

**Upper Division Requirements**

There are five required courses at the lower division level. DS 10 is a critical course since it provides the essential background for DS 100. Upper division requirements may be satisfied with appropriate upper-division classes with prior consent from a faculty advisor. However, documentation of fourth semester ability is still required. Students can take a proficiency test (see above) or alternatively, provide documentation that they have been educated in their native language at least through high school or the equivalent.

**Lower Division Requirements**

There are five required courses at the lower division level. DS 10 is a critical course since it provides the essential background for DS 100. Upper division requirements may be satisfied with appropriate upper-division classes with prior consent from a faculty advisor. However, documentation of fourth semester ability is still required. Students can take a proficiency test (see above) or alternatively, provide documentation that they have been educated in their native language at least through high school or the equivalent.

**I. Core Courses.** Minimum of five courses. Development Studies 100 (History of Development and Underdevelopment) is required. The four additional core courses are meant to provide a systematic background for students in two critical domains: (1) a discipline of their choosing and (2) a development theory. Each DS major should endeavor to build up a strong command of one (or more) social science discipline (for example, economics, political science, geography) through two courses which provide critical concepts and methods for the study of development. In addition, the student should choose a minimum of two development-focused courses which address a variety of historical, cultural, and political-economic concerns in the developing world and supplement the core disciplinary courses. See the IAS office for the most recent lists of Disciplinary and Development Courses.

**II. Methodology.** One course. The methodology requirement is designed to give each DS major a set of methodological skills appropriate to the disciplinary and core focus of each student's program. The course will be chosen from any of two broad categories: statistical methods or research design. The selection of the most appropriate course for each student should be undertaken in close consultation with an adviser. The first category focuses on advanced statistical methods and computer-assisted data analysis, building upon the skills acquired in the lower division statistics requirement. The second category focuses on research design and field methods. It is oriented to questions of survey design, field analysis, qualitative methods, and approaches to research design. Lists of approved courses can be obtained from the IAS office.

**III. Area Courses.** Minimum of three courses, one per semester for one year. Students must focus on a geographic area, building up a substantive expertise in the cultural, political, economic, and historical development of one particular part of the developing world. Students are required to take courses from more than one discipline. Lists of approved courses can be obtained from the IAS office.

**Lower Division Courses**

**C10. Introduction to Development.** (4) Three hours of lecture and one hour of discussion per week. This course is designed as an introduction to comparative development. The course will be a general service course, as well as a prerequisite for the upper division 100 series. It is assumed that students enrolled in 10 know little about life in the Third World countries and are unfamiliar with the relevant theory in political economy of development and underdevelopment. The course will be structured around three critical concepts: land, labor, and work. Also listed as Geography C32. (F) Watts

**84. Sophomore Seminar.** (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for one semester. One- and one-half hours of seminar per week for one semester. Two hours of seminar per week for one semester. Three hours of seminar per week for one semester. Sections 1-2 to be graded on a letter basis, Sections 3-4 to be graded on a letter basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered jointly by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

**Upper Division Courses**

**C100. History of Development and Underdevelopment.** (4) Three hours of lecture and one hour of discussion per week. Historical review of the development of world economic systems and the impact of these developments on less advanced countries. Course objective is to provide a background against which to understand and assess theoretical interpretations of development and underdevelopment. Also listed as Geography C112. (SP) Hart

**150. Advanced Studies in Development Studies.** (4) Course may be repeated for credit. Core consent of instructor. Three hours of lecture and one hour of discussion per week. Advanced multidisciplinary research in current issues and topics of development. Seminars will focus on specific geographical areas with appropriate comparative material included. A major research project is required, as well as class presentations. Topics change each semester. (F,SP)

**192. Senior Thesis.** (3) Individual weekly meetings. Prerequisites: Upper division standing and consent of instructor. This course is designed to provide a vehicle for undergraduate students interested in writing a major paper on a development topic. The paper should be approximately 30 pages in length. The student and faculty sponsor should agree upon the topic in advance. (F,SP)

**H195. Senior Honors Thesis Seminar.** (4) Two hours of seminar plus one hour of discussion per week. Prerequisites: International and Area Studies 102 and consent of instructor; senior standing. Honors students are required to research and write a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor and a second reader to be selected based on the thesis topic. Weekly progress reports required. (F,SP)

**197. Field Studies.** (1-4) Course may be repeated for credit. Individual meetings. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Supervised experience relevant to specific aspects of development studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

**198. Directed Group Study.** (1-4) Course may be repeated for credit. Group meetings to be announced. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Directed group study (upper division). (F,SP)

**199. Supervised Independent Study and Research for Undergraduates.** (1-4) Course may be repeated for credit. Individual meetings. Must be taken on a passed/not passed basis. Prerequisites: Written proposal must be approved by a faculty adviser. Enrollment is restricted by regulations of the College. (F,SP)

**Dutch Studies**

( College of Letters and Science )

**Group Major Office: S811 Wainwright Hall, (510) 642-7484**

Chair: Jeroen Dewulf, Ph.D.

Professors

Jan de Vries, Ph.D. (History)
Thomas F. Shannon, Ph.D. (German)
Johan P. Snapper (German Emeritus), Ph.D.
J. Frits Staal (South and Southeast Asian Studies Emeritus), Ph.D.

Associate Professors

Elisabeth Honig, Ph.D. (History)
Sylvia C. Twomey, Ph.D. (South and Southeast Asian Studies)

Assistant Professor

Jeroen Dewulf, Ph.D. (German, Queen Beatrix Professor)

Lecturer

Inez Hollander, Ph.D. University of Nijmegen, Netherlands

Peter Paul Rubens Professors

Ludo Abicht, Ph.D. (Antwerp, 2006)
Hugo Baetens Beardsmore, Ph.D. (Brussels, 1988)
Herman Breet, Ph.D. (Ghent, 1999)
Geert Buylaers, Ph.D. (Antwerp, 2008)
Els de Bens, Ph.D. (Ghent, 1993)
Ferdinand J. de Hen, Ph.D. (Ghent, 1997)
Marc de Keijser, Ph.D. (Ghent, 1999)
Regnauld de Sceyner, Ph.D. (Leuven, 1982)
Dina Hellemaers, Ph.D. (Brussels, 1992)
Marnel Janssens, Ph.D. (Leuven, 1986)
Clem-Louis Neulens, Ph.D. (Antwerp, 1995)
Herman Pastek, Ph.D. (Antwerp, 1995)
Walter Prevenier, Ph.D. (Ghent, 1983 and 2004)
Kajette Roosen, Ph.D. (Leuven, 1999)
Hilde Schoonbroodt, Ph.D. (Ghent, 1999)
Carlos Tindemans, Ph.D. (Antwerp, 1985)
Kajette van der Stighelen, Ph.D. (Leuven, 2002)
Herman van der Wee, Ph.D. (Leuven, 1994)
Eric Vanhauwe, Ph.D. (Ghent, 2008)
Adriaan E. Verhulst, Ph.D. (Ghent, 1989)
Roland Willemitte, Ph.D. (Brussels, 1988)

Adviser: Inez Hollander, Ph.D.
Group Major in Dutch Studies

The major in Dutch studies is designed to present a balanced curriculum of the language, literature, history, and culture of The Netherlands and Flanders. Since the program is both specialized (in dealing with two countries) and broad (in its many-sided approach to the subject), it is recommended that the student also prepare a related discipline so that the group major in Dutch studies may constitute the focal point to a larger area of interest. Suggested related fields of concentration are comparative literature, German, history, history of art, linguistics, and South and Southeast Asian studies (e.g., Indonesian). See the “German” section of this catalog for a list of courses.

The Major

Lower Division. Dutch 1 and 2 or equivalent.

Upper Division. The student is expected to complete a minimum of 30 upper division units. Of these the following are required:

- Dutch 110—Advanced Dutch
- Dutch 125—Conversation and Composition
- One course in the Dutch 170-series (may be repeated as topics change
- One course in the Dutch 170-series (may be repeated as topics change)
- A maximum of two upper division courses dealing with the Netherlands or Flanders offered by other departments at Berkeley, with approval by the Queen Beatrix Chair.

Honors Program. Students accepted in the honors program will enroll in Dutch H196 (1-4 units) for a total of 4 units and will be expected to write a senior thesis (Dutch 190) with distinction.

For additional information, consult the adviser for the group major in Dutch studies, S329 Dwinelle Hall.

The Minor

Lower Division. Dutch 1 and 2 or equivalent.

Upper Division. The student is expected to complete 5 upper-division courses from the following:

- Dutch 110—Advanced Dutch
- Dutch 107—The Structure of Modern Dutch
- Dutch 140—Topics in Dutch Literature
- Dutch 177—Travel/Study Course
- Dutch 190—Senior Thesis
- One course in the Dutch 160-series (may be repeated as topics change)
- One course in the Dutch 170-series (may be repeated as topics change)

Earth and Planetary Science

(College of Letters and Science)

Department Office: 307 McCone Hall #4767, (510) 642-3993
eeps.berkeley.edu
Chair: Hans-Rudolf Wenk

Professors


James Bishop, Sc.D. Massachusetts Institute of Technology. Ocean carbon cycle dynamics, ocean biogeochemical cycles, ocean instrumentation.

George H. Binnall Jr., Ph.D. University of California, Berkeley. Mineral resources, geochemistry of surficial ore formation, field geology and digital mapping technology.

Bruce Buffett, Ph.D. University of Chicago. Physical geology in the Earth’s interior.

Ronald Cohen, Ph.D. University of California, Berkeley. Atmospheric chemistry.

Kurt M. Cuffey, Ph.D. University of Washington. Glaciology, geomorphology, paleoclimatology, Earth system science.

Imke de Pater, Ph.D. Leiden University (Netherlands). Planetary astronomy: infrared imaging (speckle, AO) and spectroscopy of solar system bodies, radio observations (mm wavelengths, centimeter-meters wavelengths) of planets, satellites, comets. Atmospheres, magnetospheres, and aurorae.

Donald J. DePaolo, Ph.D. California Institute of Technology. Isotope geochemistry.


Douglass C. Drexler, Ph.D. California Institute of Technology. Seismology, earth structure, earthquake source physics.

Inez Y. Fung, Ph.D. Massachusetts Institute of Technology. Geophysical fluid dynamics, numerical modeling, biogeochemical cycles, remote sensing of Earth systems, atmospheric/oceanic/terrestrial interactions, atmosphere-biosphere interactions.

B. Lynn Ingram, Ph.D. Stanford University. Paleoclimate reconstruction; paleoceanography; marine, estuarine, and lacustrine geology.

Raymond Jeanloz, Ph.D. California Institute of Technology. Ultra-high pressure/medium pressure physics.

James W. Kasting, Ph.D. University of California, Berkeley. Environmental geochemistry, watershed hydrology, geomorphology, evolutionary ecology.

Michael Manga, Ph.D. Harvard University. Geodynamics, volcanology.


Mark A. Richards, Ph.D. California Institute of Technology. Geodynamics, gravity field and figure of the Earth, mantle convection, crustal deformation, numerical modeling.


Hans-Rudolf Wenk, Ph.D. University of Zurich. Crystallography, mineralogy, structural geology.

†Recipient of Distinguished Teaching Award

Associate Professors


Kristie Boering, Ph.D. Stanford University. Atmospheric chemistry and medicine.

Eugene Chang, Ph.D. California Institute of Technology. Theoretical seismophysics focusing on the origin and evolution of planetary systems, both extra-Solar and Solar.

Assistant Professor

Burkhard Militzer, Ph.D. University of Illinois, Urbana-Champaign (UIUC). Planetary science and high-pressure physics.

Adjunct Professors

Steve Pride, Ph.D. Texas A&M. Crustal seismology, poroelasticity, electrical properties of rocks, physics of brittle fracture.

Paul Renne, Ph.D. University of California, Berkeley. Chronology of tectonic and magmatic processes.

Doris Stovn, Ph.D. Stanford University, Berkeley. Stratigraphy, biostatigraphy, history of S.F. bay.

Associate Adjunct Professors

Davis Alumbaugh, Ph.D. University of California, Berkeley. Use of electromagnetic geophysical methods for delineating structures and fluids in the Earth and developing computer code for simulating and interpreting electromagnetic geophysical data.

Simon Clark, Ph.D. Birbeck College, University of London. High pressure, high temperature meta morphic petrology.

Department Overview

The Department of Earth and Planetary Science (formerly Geology and Geophysics) offers a program of instruction that focuses on the origin, evolution, structure and dynamics of the Earth and other planetary bodies. This is an emerging discipline built from such fields as geology, geophysics, geochemistry, oceanography, and the atmospheric, environmental and planetary sciences. We offer classes that provide core training in specialized topics, as well as integrative courses that provide a broad overview. Beginning with an introduction to planet Earth, the undergraduate major has six specializations giving students many options for courses. Extensive opportunities are provided for fieldwork, laboratory analysis and theoretical investigations. Our upper division and graduate courses are relatively small in size, allowing close interactions between students and faculty. Our undergraduate program provides strong technical training for those who wish to pursue professional careers in the Earth, environmental and planetary sciences, but it also provides training in critical thinking and communication that serves well those who choose other paths, such teaching, law, resource management and other sciences. Our graduate program is driven largely by collaborations in research with faculty who are leaders in their field.

Major in Earth and Planetary Science

The Department of Earth and Planetary Science offers six specializations—Atmospheric Science, Environmental Earth Science, Geology, Geophysics, Marine Science, and Planetary Science—which lead to a bachelor’s degree. Students in the earlier majors should consult with the department about their program. Lower division prerequisite courses must be taken on a letter-graded basis (except when a course is offered only on a P/NP basis) and must be completed with a grade of C- or higher in each course. The department will allow one D grade in a lower division class as long as the student maintains at least a C average in the major.

Atmospheric Science

Atmospheric Science Adviser: Kristie Boering, Ph.D.

This course of study (www.atmos.berkeley.edu) explores the fundamental natural processes controlling atmospheric composition, circulation dynamics, and climate. Understanding how these processes have changed in the past and may change in the future are among the greatest intellectual and technological challenges of our time. Topics covered will include the physics of climate variability and climate change, changes in stratospheric ozone, coupled ocean-atmospheric chemistry and climate, changes in the oxidation capacity of the troposphere, smog, and the impacts of atmosphere-biosphere exchange on atmospheric composition.


Upper Division: EPS 102, 150, C180, 181, 182 plus 9 additional upper division units (see department for list of electives).
Environmental Earth Science

Environmental Earth Science Adviser: William Berry, Ph.D.

The Environmental Earth Science track is designed to provide students with a broad background in the earth sciences with an emphasis on environmental sciences. Interrelationships between physical, biological, and chemical processes at the Earth’s surface will be emphasized. The track focuses more broadly on the natural sciences by using earth science mainly as a base for expanding outward depending upon students’ interests by incorporating courses in biology, hydrology, hazardous waste management, ecology and natural resources. The program is designed to provide background for graduate study in environmental science, preparation for work within governmental agencies such as the Environmental Protection Agency, Bureau of Land Management, United States Geological Survey or consulting firms, or broader involvement in land use planning, business, policy, law or management.

Lower Division: Math 1A-1B (or 16A-16B), Physics 7A-7B (or 8A-8B), Chem 1A, Biology 1B, EPS 50.

Upper Division: EPS 102, 117, 120, 150, ERG 102 plus 12 additional upper division units (see department for a list of electives).

Geology

Geology Adviser: George Brimhall, Ph.D.

Geology is the science of the Earth—of its minerals and processes, of its origin, and evolution. It is a broad science concerned with a vast range of physical phenomena in both space and time, and requires a broad scientific background. Trained geologists can address a wide range of concerns, including energy supply, mineral resources, and environmental protection. This track provides strong background in the processes shaping the Earth; it emphasizes quantitative understanding and a strong foundation in the physical sciences.


Upper Division: EPS 100A, 100B, 101, 102, 118, 150 plus 10 additional upper division units (see department for a list of electives).

Geophysics

Geophysics Adviser: Douglas Dreger, Ph.D.

The Geophysics track is designed to provide students with theoretical, field and laboratory experience in studying geodynamic processes and the structure of the Earth and other planets. It is designed for students with good physics and mathematics ability. It provides a solid background in physical science and mathematics with an emphasis on the physics of the Earth.


Upper Division: EPS 102, 104 or 121, 130, 150 plus 11 additional upper division units (see department for a list of electives).

Marine Science

Marine Science Adviser: Jim Bishop, Ph.D.

This course of study is a new undergraduate program. The ocean plays a central role in physiological, biological, chemical, and geological processes on Earth. The field of marine science thus requires an understanding of the interactions between the biosphere, hydrosphere, lithosphere, and atmosphere. Some examples of the current research directions of societal concern in the marine sciences include: the role of the ocean in climate change; the ocean’s role in climate phenomena such as El Niño and La Niña, and their effect on modern marine ecosystems; the history of El Niño and other climatic phenomena recorded in marine sediments and corals; coastal pollution and its affect of coastal marine ecosystems; coastal erosion (natural and human-caused).

Lower Division: Math 1A-1B (or 16A-16B), Physics 7A-7B (or 8A-8B), Chem 1A, Biology 1B, EPS 50, Geology Adviser.

Upper Division: EPS 102, 150 and four courses from the following: EPS 100A, 100B, 103/203, 115, C146, IB 106, IB 106A plus 8 additional upper division units (see department for a list of electives).

Planetary Science

Planetary Science Adviser: Burkhard Mittelitz, Ph.D.

Planetary science encompasses the study of the physical and chemical nature of planetary bodies, both in the Solar System and in extrasolar systems. The formation of planets, the forces that sculpted their orbits, the processes that shaped their interiors, surfaces, and atmospheres and the development of life all fall under its rubric. Undergraduate students are given knowledge of astronomy and astrophysics, earth science, meteorology, atmospheric science, space science, plasma physics, chemistry, and biology. The Planetary Science track has been developed to study the remarkable interface among these disciplines.


Upper Division: EPS 102, 150, C162 plus 14 additional upper division units (see department for a list of electives).

Honors Program

Students in the honors program must fulfill the following additional requirements: (1) maintain a GPA of at least 3.3 in all courses in the major, and an overall GPA of at least 3.3 in the University; and (2) carry out an individual research study project, involving at least three units of H195. The project is chosen in consultation with a departmental advisor, and written report is judged by the student’s research supervisor and a departmental advisor. Application for the Honors Program should be made through the student’s adviser no later than the end of the student’s junior year.

Minor in Earth and Planetary Science

Lower Division: Earth and Planetary Science 50 or equivalent

Upper Division: Five upper division courses chosen from the major list and approved by the major adviser. In consultation and with prior approval of the major adviser, students will have the opportunity to choose a coherent program which parallels the department or a general interest track. Course selections will be guided by the same parameters as those in the major tracks with an option of a general interest track. At least three of the five upper division courses must be completed at Berkeley. No more than one of the five required courses for your minor may be included in your major program. All courses must be for a grade and a minimum 2.0 GPA is required in the upper division courses applied to the minor. Students interested in the minor should contact the Student Affairs Office in 305 McCone Hall.

Graduate Programs

Graduate Advisers: Richard Allen, Ph.D., and Roland Bürgmann, Ph.D.

The department offers M.A., M.S., and Ph.D. degrees in earth and planetary science. The central objective of the graduate program is to encourage creative thinking and develop the capacity for independent and original research. A strong undergraduate background in the physical and chemical nature of planetary geology is especially helpful, and a significant number of our graduate students have their training in physics, chemistry, mathematics, engineering, or astronomy. Graduate students are formally accepted into the Earth and Planetary Science program, and they normally work directly toward a Ph.D. A master’s degree is not prerequisite for a Ph.D.

Master’s Degree. Requirements for the Master’s degree consist of 24 semester units of upper division and graduate courses (at least 12 must be graduate, non-research units), followed by a comprehensive oral examination. The Master’s thesis should be completed within four semesters (two years).

Ph.D. Degree. Candidates for the Ph.D. degree must pass the oral qualifying examination by the end of the second year and complete a thesis to the satisfaction of the appointed thesis committee. Students must have three recommendations to present to the qualifying examination, each developed under the supervision of a different professor on substantially different topics.

Research Facilities

Center for Isotope Geochemistry (eps.berkeley.edu/cig), directed by Professor Donald DePaolo, is a joint research center of both UC Berkeley and Lawrence Berkeley National Laboratory. CIG provides state-of-the-art analyses for measuring concentrations and isotopic compositions of elements in rocks, minerals, fluids and gases in the Earth’s crust, oceans, atmosphere, and biosphere. The Center focuses more broadly on the natural sciences by using earth science mainly as a base for expanding outward depending upon students’ interests by incorporating courses in biology, hydrology, hazardous waste management, ecology and natural resources. The program is designed to provide background for graduate study in environmental science, preparation for work within governmental agencies such as the Environmental Protection Agency, Bureau of Land Management, United States Geological Survey or consulting firms, or broader involvement in land use planning, business, policy, law or management.

The Center for Atmospheric Sciences (www. atmos.berkeley.edu) is a new multidisciplinary academic group at Berkeley. It focuses on the processes that maintain and alter the atmosphere’s chemical composition and circulation. It also examines the climatic effects of changes in these processes. A special emphasis is the interaction between the geosphere-biosphere climate, with the atmosphere as the synthetizer of changes at its boundaries, and the communicator of these changes to the other spheres. Center members and associates are from the Departments of Earth and Planetary Science; Chemistry; Environmental Science, Policy and Management; Mechanical Engineering: the Space Sciences Laboratory; Lawrence Berkeley National Laboratory, among others. Research approaches are multi-faceted, and include: global three-dimensional circulation models, satellite observations, high-precision instrumentation for atmospheric chemistry, aircraft measurements of stratospheric-tropospheric exchange, measurements and simulations of atmosphere-biosphere exchange and other processes. This laboratory permits the Center to pose and attack new questions about past and future climate change.

Berkeley Geomorphology Group prospers because of the diversity of strong research programs across the campus and because of a com-
mitment to undergraduate teaching and graduate training. The core faculty consist of Kurt Cuffey (Geography), William Dietrich, Jim Kirchner, and Michael上年 (Earth and Planetary Science). Their research programs tackle a wide range of topics including glacier mechanics, paleoclimate analysis, hydrology, environmental geochemistry, landscape evolution, hydrogeology, mechanics, fluid processes, restoration geomorphology, and biologic extinctions and evolutionary processes. These faculty and their students interact and collaborate with many other related groups on campus.

Active Tectonics Group (seismo.berkeley.edu/~burgmann) uses an interdisciplinary approach to investigate active tectonic processes and the rheology of the Earth's lithosphere. This approach integrates geologic, geophysical, geomorphic, and geologic observations with theoretical models to improve scientific understanding of fault zone processes and crustal deformation. Of particular value in this endeavor are space geodetic observations employing the Global Positioning System and Synthetic Aperture Radar Interferometry to precisely measure deformation near active faults, volcanoes, and islands. Members of the group, led by Roland Burgmann, often interact closely with colleagues in the Berkeley Seismological Laboratory and the Geomorphology Group.

The Berkeley Geochronology Center (bgc.org) is a nonprofit research institution dedicated to elucidating important events in the history of the Earth, its various habitats, and its interactions with the rest of the Solar System, throughout the 4.6 billion years of our Planet’s existence. BGC scientists determine the ages of rocks and other materials to date important events in geological and biologic history. Through understanding such information in geologic context, BGC research provides key insights into processes such as tectonic movements, volcanism, mountain building, mass extinctions, climate change, interactions between the Earth and Solar System, and the evolution of life, including humankind.

The Berkeley Seismological Laboratory (seismo.berkeley.edu) is the University's operating center for a network of geophysical instruments in northern California to study earthquakes and tectonic processes at the regional scale: a network of 26 broad-band seismographs and a network of 1800 near-by and linked by continuous telemetry to UC Berkeley forms the core of the monitoring program. In addition, a network of permanent GPS stations and a network of more than 2000 millimeter waveimeters are maintained and operated by the lab, as well as an online archive for earthquake related data in northern California. Research includes the study of earthquake wave propagation through complex structures, the nature of earthquake sources, eigen-vibrations of the earth and global tomography.

Center for Computational Seismology. Within the Earth Sciences Division at the Lawrence Berkeley National Laboratory is a facility for modern seismological research which relies heavily upon intensive computational analysis (e.g., acoustic imaging, 3D wave propagation, high resolution inverse earthquake analyses) or large database management and is used in a significant number of Ph.D. and postdoctoral research studies.

The Engineering Geoscience Group teaches and researches applied geophysics. It is an integral part of the Geological Engineering Group within the Department of Civil and Environmental Engineering and Geophysics at Berkeley. The group formed originally in 1962, to study and encourage the use of geophysical methods in mineral and petroleum exploration programs. Recently, attention has been turned to the more general topic of subsurface mapping and imaging. While research in resource exploration topics is still actively pursued, the group’s activities now include work on materials and instrument development for a variety of near surface applications related to the resolution of geotechnical and environmental problems. In this area, the group works jointly with the Department of Civil and Environmental Engineer-

20. Earthquakes in Your Backyard. (3) Three hours of lecture per week and one or more field trips. Formerly Geology 20. Introductory course to earthquakes, their causes and effects. General discussion of basic principles and methods of seismology and geological tectonics, distribution of earthquakes in space and time, effects of earthquakes, earthquake hazard and risk, with particular emphasis on the situation in California. (F,SP)

C20. Earthquakes in Your Backyard. (3) Two hours of lecture per week and one or more field trips. Introductory course to earthquakes and tectonic events. General discussion of basic principles and methods of seismology and geological tectonics, distribution of earthquakes in space and time, effects of earthquakes, and earthquake hazard and risk, with particular emphasis on the situation in California. Also listed as Letters and Science C70Y. (F)

24. Freshman Seminar in Earth and Planetary Sciences. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-4 to be graded on a passed/not passed basis. Formerly Geology 24. The Freshman seminar in earth and planetary science is designed to provide new students with an opportunity to explore earth sciences with a faculty member in a small-seminar setting. Topics will vary from semester to semester but will include such possible topics as geo-}
them cross the barriers between fields of historical study. (SP) Alvarez

C51. Big History—Cosmos, Earth, Life, and Humanity. (4) Three hours of lecture and one hour of discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Sophomore standing, except for freshmen who have previously taken 50. This course explores all four major regimes of history—cosmic history, Earth history, life history, and human history. After these nontechnical topics, it seeks to understand the character of history by examining long-term trends and critical chance events, by looking for common causes underlying history through all four regimes, and by identifying the novelties that have made each regime unique. It offers a broad perspective for students interested in any one of the historical disciplines, helping them cross traditional fields of study. Also listed as Letters and Science C70X. (SP) Alvarez

80. Environmental Earth Sciences. (2) Students will receive no credit for 80 after taking Integrative Biology 80 or Paleontology 15. Two hours of lecture per week. Formerly Geology 80. The course describes geologic processes active on and in the Earth and man's interactions with them. Geologic aspects of the land and oceans based on an understanding of Earth's environment. (SP) Alvarez

C82. Introduction to Oceans. (2) Two hours of lecture per week. The geology, physics, chemistry, and biology of the world oceans. The application of oceanographic sciences to human problems will be explored through special topics, such as energy from the sea, marine pollution, food from the sea, and climate change. Also listed as Geography C82 and Integrative Biology C82. (F) Bishop, Powell, Rhew

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week the first semester. One and one-half hours of seminar per week per unit for 10 units. Three hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit. Group meetings of various lengths. Must be taken on a passed/not passed basis. Formerly Geology G98. Group studies on selected topics which vary from semester to semester. Upper Division Courses

C100. Communicating Ocean Science. (4) Two and one-half hours of lecture, one hour of discussion, and two hours of fieldwork per week. Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science; junior, senior, or graduate standing; consent of instructor required for sophomores. For undergraduates interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentorship and feedback on how to improve their presentations. Also listed as Geography C100. (SP) Ingram

100A. Minerals: Their Constitution and Origin. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: Some background in chemistry and physics. Formerly Geology 100A. Introduction to structural, compositional, and physical properties of minerals, their analogs and related substances, their genesis in various geological and synthetic processes, and the laboratory methods for identifying and analyzing minerals. One field trip to selected mineral deposits and visits to laboratories.

100B. Genesis and Interpretation of Rocks. (4) Two hours of lecture and four hours of laboratory per week, plus one weekend field trip. Prerequisites: 100A. An overview of the history of the earth emphasizing the major principles of plate tectonics and the geologic environments where rocks are formed and displayed. Igneous, sedimentary, and metamorphic processes discussed in the context of global tectonics.

101. Field Geology and Digital Mapping. (4) Seven hours of field work divided into one hour of lecture per week, and additional field trips. Prerequisites: 50 or equivalent introductory course in Earth and Planetary Science. Formerly Geology 101. Geological mapping, field observation, and problem-solving in the Berkeley hills and environs leading to original interpretation of geological processes and history from stratigraphic, structural, and lithological investigations. Integration of the Berkeley hills geology into the Coast Ranges and California as a whole through field trips to key localities. Training in digital field mapping, global positioning systems, and laser surveying. Interdisciplinary focus encourages participation by non-majors.

203, 204 / Earth and Planetary Science

204. Advanced Field Course. (4) Three hours of lecture and three hours of laboratory per week, plus weekend field trips. Prerequisites: 50, 100A-100B, or consent of instructor. Formerly Geology 115. Collecting, analyzing, and presenting stratigraphic data; dating and correlating sedimentary rocks; recognizing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neocatastrophism; applications of stratigraphy to climate change, petroleum geology, and archaeology. (SP) Alvarez

116. Structural Geology and Tectonics. (2) Two hours of lecture, two hours of laboratory, several one-to-two-day field trips. Prerequisites: 50. Formerly Geology 116. Introduction to the geometry and mechanics of brittle and ductile geologic structures; their origins and evolution; the relationship to strains and stresses, both kinematic indicators; case histories of selected regions elucidating tectonic evolution in different plate tectonic settings. Laboratory exercises will focus on analysis of hand specimens and structural relations portrayed on geologic maps. Several trips to observe geologic structures in the field to supplement laboratory exercises. Burgmann

117. Geomorphology. (4) Three hours of lecture and three hours of laboratory per week, plus weekend field trips. Prerequisites: 50 or consent of instructor. Formerly Geology 117. Quantitative examination of landforms, runoff generation, weathering, mechanics of soil erosion by water and wind, mass wasting, glacial and periglacial processes and hillslope evolution.

118. Advanced Field Course. (4) Three hours of lecture and two hours of discussion per week, plus two-day field trip. Prerequisites: 50, 100A-100B, 101, or consent of instructor; 119 is strongly recommended. Formerly Geology 118. Advancing from field sampling, intensive field observation, and problem solving in the field areas selected by instructors. Includes preparation of final reports. (SP) Brimhall

119. Geologic Field Studies. (2) Course may be repeated for credit. Prerequisites: 101 and consent of instructor. Formerly Geology 119. Two to four-weekend field trips to localities of geological interest.

C120. Analysis of Environmental Data. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: One year of calculus or consent of instructor. Formerly Geology C120. Fundamentals of exploratory data analysis and hypothesis testing for environmental scientists, with emphasis on characterizing and evaluating uncertainty. Introduction to data analysis in earth sciences, including error propagation, design of experiments, and Monte Carlo methods. Microcomputer laboratories, using real environmental data, explore concepts and techniques presented in lecture. Also listed as Energy and Resources Group C130. (F) Kochmar

122. Physics of the Earth and Planetary Interiors. (3) Three hours of lecture per week. Prerequisites: Physics 105. Formerly Geophysics 122. Gravity field, density distribution, and internal structure of the Earth and planets. Tools from physics relevant for understanding geophysical processes, including error propagation, design of experiments, and Monte Carlo methods. Microcomputer laboratories, using real environmental data, explore concepts and techniques presented in lecture. Also listed as Energy and Resources Group C130. (F) Kochmar

111. Petroleum Geology. (3) Three hours of lecture per week. Prerequisites: 50, 100A, or consent of instructor. Formerly Geology 115. Collecting, analyzing, and presenting stratigraphic data; dating and correlating sedimentary rocks; recognizing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neocatastrophism; applications of stratigraphy to climate change, petroleum geology, and archaeology. (SP) Alvarez

115. Stratigraphy and Earth History. (4) Three hours of lecture, one five-day field trip and two one-day field trips. Prerequisites: 50, 100A, or consent of instructor. Formerly Geology 115. Collecting, analyzing, and presenting stratigraphic data; dating and correlating sedimentary rocks; recognizing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neocatastrophism; applications of stratigraphy to climate change, petroleum geology, and archaeology. (F) Alvarez

120. Analysis of Environmental Data. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: One year of calculus or consent of instructor. Formerly Geology C120. Fundamentals of exploratory data analysis and hypothesis testing for environmental scientists, with emphasis on characterizing and evaluating uncertainty. Introduction to data analysis in earth sciences, including error propagation, design of experiments, and Monte Carlo methods. Microcomputer laboratories, using real environmental data, explore concepts and techniques presented in lecture. Also listed as Energy and Resources Group C130. (F) Kochmar

122. Physics of the Earth and Planetary Interiors. (3) Three hours of lecture per week. Prerequisites: Physics 105. Formerly Geophysics 122. Gravity field, density distribution, and internal structure of the Earth and planets. Tools from physics relevant for understanding geophysical processes, including error propagation, design of experiments, and Monte Carlo methods. Microcomputer laboratories, using real environmental data, explore concepts and techniques presented in lecture. Also listed as Energy and Resources Group C130. (F) Kochmar
124. Isotopic Geochemistry. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Chemistry 1A-1B, Mathematics 1A-1B. An overview of the use of natural isotopes to study earth, planetary, and environmental problems. Topics include geochronology, cosmogenic isotopes, sedimentary processes, and the applications of radiocarbon and radiogenic isotopes. The course begins with an introduction to radiogenic and stable isotopes and studies of planetary evolution, mantle dynamics, volcanoes, groundwater, and geothermal systems. The course begins with a short introduction to nuclear processes and includes simple mathematical models used in geochemistry. DePaolo

C129. Biometeorology. (3) Three hours of lecture per week. This course provides an overview of the physical environment (light, wind, temperature, humidity) of plants and how plants affect the physical status of plants and how plants affect their environmental. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and materials (i.e., water, water vapor, and atmospheric trace gases) between vegetation and the atmosphere. Plant biometeorology instrumentation and measurements are also discussed. Also listed as Environment Sci, Policy, and Management C129. (F) Baldocchi

130. Strong Motion Seismology. (3) Three hours of lecture per week. Prerequisites: Geophysics 10, or consent of instructor. Formerly Geophysical Sciences 130. Generation of seismic waves. Synthesis of theoretical seismology and experimental measurement of seismic waves. Estimation of seismic motion at a site. Impending crisis in renewable energy and the imperative of resource literacy. Also listed as Letters and Science 170AC. This course satisfies the American Cultures requirement. Brumfield

C171. Geoastronomical Science. (3) Three hours of lecture and three hours of laboratory per week. This survey and laboratory course will cover a broad range of current techniques used in the field and in the analysis of geoastronomical materials. The course begins with an overview of the theory and practice of geophysical methods for the study of the Earth, the Moon, the Sun, and other planets and will be explored through laboratory experiments, numerical simulations, and field observations. The course is intended for Earth and Planetary Science majors and minors, and for chemistry, physics, astronomy, biology, and engineering majors whose interests lie in science applied to the Earth and other planets. Also listed as Geography C139. Chiang, Fung

C182. Atmospheric Chemistry and Physics Laboratory. (3) Three hours of lecture and one hour of discussion per week. Formerly after taking Chemistry 125. One hour of lecture and five hours of laboratory per week. Fluid dynamics, radiative transfer, and the kinetics, spectroscopy, and reactions of atmospheric gases. Topics are explored through laboratory experiments, numerical simulations, and field observations. The course is intended for Earth and Planetary Science majors and minors, and for chemistry, physics, astronomy, biology, and engineering majors whose interests lie in science applied to the Earth and other planets. Also listed as Chemistry C182. (SP)

185. Marine Geology. (2) Three hours of lecture per week. Formerly Geology 185. Interrelationships between marine organisms and chemical and geological processes in oceans. (F) Berry

H195. Senior Honors Course. (3) Individual conferences. Prerequisites: Limited to honors candidates. Formerly Geology H195. Original research and preparation for a thesis. May be taken during two consecutive semesters, and may be substituted for six units of the upper division requirement with consent of major adviser.

198. Directed Group Study. (1-4) Course may be repeated for credit. Group meetings of various lengths. Prerequisites: Consent of instructor. Listed as Geography C139. (F,SP)

Graduate Courses

200. Problems in Hydrogeology. (4) Three hours of lecture per week. Prerequisites: Mathematics 7A-7B, Chemistry 1A-1B, and 53 and 54; open to senior undergraduates with appropriate prerequisites. Formerly Geophysics 200. Current problems in fluid flow, heat flow, and solute transport in the earth. Pressure-and thermal-driven flow, instability, convection, interaction between fluid flow and reactions, Phase changes and earth fluids; diagenesis; hydrocarbon migration and trapping; flow-associated mineralization; contaminant problems.

202. Thermodynamic Analysis of Chemical Reactions in Natural Processes. (3) Three hours of lecture per week. Prerequisites: Mathematics through differential equations and an upper division background in chemistry or geochemistry. Formerly Geology 202. Application of chemical thermodynamics and solution chemistry to prediction of the behavior of geological processes of both reversible and irreversible reactions in inorganic and organic processes.

203. Introduction to Marine Geochemistry. (3) Three hours of lecture per week. Prerequisites: 50, Chemistry 1A-1B, Mathematics 1A-1B, Physics 7A or consent of instructor. The global water cycle; major water masses, their sources, and sinks; the distribution of chemical species within the hydrosphere; mass balances, fluxes, and reactions in the marine environment; and the physical changes from the global to submicroscopic scales; relationships to physical, biological, and geochemical processes; chemical tracers and tools.

204. Elastic Wave Propagation. (3) Three hours of lecture per week. Prerequisites: 104 or equivalent; 121, Physics 105. Formerly Geophysics 404. Wave
207. Laboratory in Observational Seismology. (3) Three hours of lecture per week. Prerequisites: 121 or 130 or 204 or consent of instructor. Formerly Geophysics 207. Group problem solving of current seismological topics. Analysis, inversion, and numerical modeling concepts are introduced. Computer programs to test various topics related to current questions regarding the physics of the earthquake source and seismic wave propagation. Application of current developments and techniques in seismological research.

212. Advanced Stratigraphy and Tectonics. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Geology 212. Evolution of the earth in response to internal, surficial and extra-terrestrial processes.

213. Field Geology and Digital Mapping. (4) Seven hours of fieldwork and two hours of lecture per week. Prerequisites: 212 or equivalent, or consent of instructor. Formerly Geology 207. Digital field mapping and use of global positioning systems. Interdisciplinary focus encourages participation by non-majors. (SP) Brimhall

216. Active Tectonics. (3) Three hours of lecture per week. Prerequisites: 116 or equivalent, Physics 7A or equivalent, or consent of instructor. Formerly Geology 207. This course is a graduate course designed to introduce students in the earth sciences to the geology of earthquakes and tectonic plate boundaries. Students will study seismology and the analysis and interpretation of geodetic measurements of active deformation. While the focus will be primarily on seismically active faults, we will also discuss deformation associated with landslides, regional isostatic rebound, and volcanoes, as well as measurements of global plate motions. We will address methods and applications in paleoseismology, tectonic geomorphology, and geodesy. The course will address measurement techniques (e.g., GPS, leveling, etc.), data analysis and inversion, and subsequent modeling and interpretation of the data. The integration of measurements with geologic and geoscientific data allows an improved understanding of active processes.

217. Fluvial Geomorphology. (4) Course may be repeated for credit. Three hours of lecture and two hours of laboratory per week; some fieldwork is assigned. Prerequisites: 116 or equivalent, or consent of instructor. Formerly Geology 217. Application of fluid mechanics to sediment transport and development of river morphology. Form and process in river meanders, the pool-riffle sequence, aggradation, grade, and base-level.

220. Advanced Concepts in Mineral Physics. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Geophysics 220. A combined seminar and lecture course, this advanced course is offered to advanced graduate students in mineral physics. The interface between geophysics with the other physical sciences is emphasized. Topics vary each semester.

224. Isotopic Geochemistry. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: Chemistry 1A-1B, Mathematics 1A-1B. An overview of the use of natural isotopic variations to study earth, planetary, and environmental problems. Topics include geochronometry, cosmogenic isotopes studies of tectonics, mantle plumes, and the carbon cycle, water isotopes in the water cycle, and radiogenic and stable isotope studies of planetary evolution, mantle dynamics, volcanoes, groundwater, and geothermal systems. The course begins with a short introduction to nuclear processes and includes simple mathematical models used in isotope geochemistry. DePaolo

225. Topics in High-Pressure Research. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Consent of instructor. Formerly Geophysics 256. This course will introduce students to the fundamental concepts and techniques in experimental and theoretical high-pressure research, with applications in the physical sciences. Topics vary each semester.

229. Introduction to Climate Modeling. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 181, Integrative Biology 106A, or background in fluid mechanics/thermo-dynamics or conservation laws. This course will introduce students to the fundamentals of the system via a hierarchy of climate models. Topics will include energy balance, numerical techniques, climate observations, and interpretation of data in a geologic context. Advanced undergraduates are encouraged to attend. (SP) Powell

235. Characterization of Minerals and Rocks. (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: 116 or equivalent, or consent of instructor. Formerly Geology 225. This course covers the main methods of characterization such as X-ray diffraction, X-ray fluorescence, electron microprobe, and electron microscopy. Interpretation of data in a geologic context. Advanced undergraduates are encouraged to attend. (SP) Fung

236. Geological Fluid Mechanics. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Continuum/Fluid Mechanics at the level of 108 or consent of instructor. Formerly Geophysics 224. An advanced course in the application of fluid mechanics in the earth sciences, with emphasis on the design and scaling of laboratory and numerical models. Principals of inviscid and viscous fluid flow; dynamics and transport; turbulence; instability; gravity currents; mixing and chaos; porous flow. Applications to mantle convection, magma dynamics, atmosphere and ocean dynamics, sediment/debris flows, and hydrogeology. Topics may vary from year to year.

241. Isotope Biogeochemistry. (5) Three hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing. Use of isotopes in present and past terrestrial and aquatic research. Lectures cover the principles of isotope distribution on Earth (first 10 weeks). The second part of the course focuses on student presentations of case studies and research proposals. In the laboratory, students perform samplings and analysis exercises listed as Environ Sci, Policy, and Management 220 and Integrative Biology C227. (SP) Amundson, Dawson, Ingram, Mambelli

242. Glaciology. (4) Three hours of lecture and one hour of consultation per week. Prerequisites: Calculus. A review of the mechanics of glacial systems, including formation of ice masses, glacial flow mechanisms, subglacial hydrology, temperature and heat transport, global flow, and response of ice sheets and glaciers. Focus will be given to the processes and factors that control glaciers as geomorphologic agents and as participants in climate change. Also listed as Geography C241. Cuffey

246. Geological Oceanography. (4) Three hours of lecture per week. The tectonics and morphology of the sea floor, the geologic processes of the deep and shelf seas, and the climatic record contained in deep-sea sediments. The course will cover sources and composition of marine sediments, sea level change, ocean sediments, marine stratigraphy, and ocean floor resources. (SP) McGowen, Brinck

249. Solar System Atmospheres. (3) Three hours of lecture per week. The physical foundations of planetary sciences. Topics include planetary interiors and surfaces, planetary atmospheres and magnetospheres, and smaller bodies in our solar system. The physical processes at work are developed in some detail, and an evolutionary picture for our solar system, and each class of objects, is developed. Some discussion of other (potential) planetary systems is also included. Also listed as Astronomy C249. (F) Chiang, de Pater, Jeanloz

254. Advanced Topics in Seismology and Geophysics. (1) Course may be repeated for credit. One hour of lecture per week. Formerly Geophysics 254. Formerly Geophysics 255. Formerly Geophysics 250, 251. Discussion of various topics related to current advances in seismology and geophysics, including local and global seismic monitoring, regional tectonics, structure of the Earth’s mantle, and core and global dynamics.

255. Advanced Topics in Earth and Planetary Science. (1) Course may be repeated for credit. One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Lectures on various topics representing current advances in all aspects of earth and planetary science. (F,SP)

256. Earthquake of the Week. (2) Course may be repeated for credit. Two hours of discussion per week. Formerly Geophysics 256. Weekly presentations to introduce new graduate students and senior undergraduates to current research conducted in the Department of Earth and Planetary Science.

271. Field Geology and Digital Mapping. (4) Students will receive no credit for 271 after taking 211. Seven hours of fieldwork and two hours of lecture per week. Prerequisites: 50 or equivalent introductory course for majors. Geophysical mapping, field observation, and problem solving in key localities. Training in systematic field mapping in specific localities. Must be taken on a satisfactory/unsatisfactory basis. Formerly Geology 260. Weekly presentations to introduce new graduate students and senior undergraduates to current research conducted in the Department of Earth and Planetary Science.

290. Research. (2-12) Course may be repeated for credit. Two hours of lecture per week. Formerly Geology 290. Research and proposals. In the laboratory, students prepare samplings and analysis exercises listed as Environ Sci, Policy, and Management 220 and Integrative Biology C227. (SP) Amundson, Dawson, Ingram, Mambelli

291. Seminar. (2-6) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Graduate standing and appointment as graduate student. Three hours of lecture and one-half hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly Geology 290. Topics will be announced each semester.

298. Directed Group Study for Graduates. (1-9) Course may be repeated for credit. One hour per week. Formerly Geology 298. One-hour group meetings and individual conferences. Section 1 (fall) to be graded on a satisfactory/unsatisfactory basis; other sections may be taken on letter-grade basis. Professional Courses

300. Professional Preparation: Supervised Teaching of Geology and Geophysics. (1-6) Course may be repeated for credit. One hour per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and appointment as graduate student instructor. Formerly Geology 300. Discussion, curriculum, class observation, and practice teaching in geology, geophysics, and earth science.

C301. Communicating Ocean Science. (4) Two and one-half hours of lecture, one hour of discussion, and two hours of fieldwork per week. Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science; junior, senior, or graduate standing; consent of instructor required for sophomores. For
graduate students interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations. Also listed as Geography C301 and Integrative Biology C215. (SP) Ingram

East Asian Languages and Cultures

(College of Letters and Science)

Department Office: 104 Durant Hall, (510) 642-3480
eaic.berkeley.edu
Chair: Alan Tanman, Ph.D.

Professors
Mark Csiszentmihalyi, Ph.D. Stanford University. Early Chinese thought and literature
TH. Mack Horton, Ph.D. University of California, Berkeley. Classical Japanese literature
Robert Shuf (The D. H. Chen Distinguished Professor of Buddhist Studies), Ph.D. University of Michigan. Buddhist literature
Alan Tansman (The Louis B. Agassiz Professor of Japanese), Ph.D. Yale University. Modern Japanese literature
Haruo Aoki (Emeritus), Ph.D.
Cyril Birch (The Louis B. Agassiz Professor of Chinese Emeritus), Ph.D.
Kun-chung Chang (Emeritus), Ph.D.
John C. Jamesson (Emeritus), Ph.D.
David N. Keightley (Emeritus), Ph.D.
Negi K. Rokaj (The Louis B. Agassiz Professor of Chinese Emeritus), Ph.D.
Pang-Hsin Ting (Emeritus), Ph.D.
Stephen West (The Louis B. Agassiz Professor of Chinese Emeritus), Ph.D.

Associate Professors
Robert Ashmore, Ph.D. Harvard University. Classical Chinese literature
Yokichi Hasegawa, Ph.D. University of California, Berkeley. Japanese linguistics
Andrew Jones (The Catherine and William L. Magistretti Distinguished Professor in East Asian Languages and Cultures), Ph.D. University of California, Berkeley. Modern Chinese literature and popular culture
Daniel O'Neill, Ph.D. Yale University. Modern Japanese literature
Paula Varsano, Ph.D. Princeton University. Classical Chinese literature
Sophie Voopp, Ph.D. Harvard University. Modern literature, comparative literature
Duke Jordan, Ph.D. Harvard University. Buddhist studies
James E. Boss (Emeritus), Ph.D.

Assistant Professors
Jacob Dalton, Ph.D. University of Michigan. Buddhist studies
William Safera, Ph.D. University of Chicago. Modern Chinese literature and culture
Jiwon Shin, Ph.D. Harvard University. Korean literature

Lecturer
Cecelia Chu, M.A.

Lecturers
Yasuko Komori Baker, M.A.
Wakari Kambara, M.A.
Kijo Ko, Ph.D.
I-Hao Li, M.A.
Li Liu, Ph.D.
Chika Shibahara, M.A.
Masako Tomita, B.A.
Noriko Komatsu Wallace, B.A.
Ying Yang, M.A.
Li Hui Chang, Ph.D.

Undergraduate and Graduate Advisers
Consult department office.

B prefix=course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix=course satisfies R&G requirement
AC suffix=course satisfies American Cultures requirement

The Undergraduate Majors

The Department of East Asian Languages and Cultures offers undergraduate majors in the languages and cultures of China and Japan, minors in Chinese, Japanese, Korean, and Buddhism, and honors programs, all of which introduce the vast and variegated literary, artistic, philosophical, and cultural legacies of East Asia and their transformations in modernity. The courses of study are designed to train students in the humanistic investigation of major East Asian traditions, through a curriculum that centers on the acquisition of the modern and classical forms of the languages, the informed and engaged reading of a wide variety of East Asian texts in their historical and cultural contexts, and the development of effective writing skills and critical thinking.

Chinese
Prerequisites (must earn a grade of C or higher):
• Chinese 1A, 1B (5, 5): Elementary Chinese
• Chinese 7A or 7B (4): Introduction to Chinese Literature (must be taken at Berkeley)

Lower Division (minimum of three courses and 12 units):
• Chinese 10A, 10B (5, 5): Intermediate Chinese*
• Chinese 7A or 7B (4): Introduction to Chinese Literature (whether was not taken as a prerequisite)

Upper Division (minimum of eight courses and 32 units; minimum GPA of 2.0):
• Chinese 100A, 100B (5, 5): Advanced Chinese*
• Chinese 110A, 110B (4, 4): Introduction to Literary Chinese
• One modern Chinese literature course (C155, C156, or C157)
• One East Asian Languages upper division course (e.g., EA 100, 102)
• Two electives selected in consultation with the advisor.
Total units required: 62

Japanese
Prerequisites (must earn a grade of C or higher):
• Japanese 1A, 1B (5, 5): Elementary Japanese
• Japanese 7A or 7B (4): Introduction to Japanese Literature (must be taken at Berkeley)

Lower Division (minimum of three courses and 12 units):
• Japanese 10A, 10B (5, 5): Intermediate Japanese
• Japanese 7A or 7B (4): Introduction to Japanese Literature (whether was not taken as a prerequisite)

Upper Division (minimum of eight courses and 32 units; minimum GPA of 2.0):
• Japanese 100A, 100B (5, 5): Advanced Japanese*
• Japanese 120: Introduction to Classical Japanese
• One classical Japanese literature course (J130, J132, J134, J140, J142, J144, J146)
• One modern Japanese literature course (J155 or J159)
• One East Asian Languages upper division course (e.g., EA 100, 102)
• Two electives selected in consultation with the advisor.
Total units required: 62

Note: Students with previous language experience will be required to take a placement exam with department language coordinators. Students who place out of language courses will be required to take additional adviser-approved literature or culture courses offered by the department in order to meet the above unit requirements.

The Undergraduate Minors

The Department of East Asian Languages and Cultures offers four minor programs: Buddhism, Chinese, Japanese, and Korean. Each minor requires 20 units and five upper division courses (except where otherwise noted) in addition to fourth-semester language proficiency.

Minor in Buddhism: Proficiency in Chinese or Japanese equivalent to 10B. (Other relevant Asian languages may be substituted with adviser approval.) Five upper division courses: three courses in Buddhism; two additional courses chosen in consultation with the adviser. Buddhism 50 may be substituted for one of the five courses.

Minor in Chinese: Chinese 10B or equivalent. Five upper division courses: three courses in Chinese; two additional East Asian language courses. Either 7A or 7B may be substituted for one of the five courses.

Minor in Japanese: Japanese 10B or equivalent. Five upper division courses: three courses in Japanese; two additional East Asian language courses. Either 7A or 7B may be substituted for one of the five courses.

Minor in Korean: Korean 10B or equivalent. Five upper division courses: three courses in Korean; two additional East Asian language courses. Either 7A or 7B may be substituted for one of the five courses.

Note: All minor courses require adviser approval and must be taken for a letter grade.

Honors Program
A senior undergraduate student who has completed 12 units of upper division language courses in the department, and who has a GPA of 3.5 in those courses and an overall average of 3.0 may apply for admission to the honors program. If accepted, the student will enroll in an honors course (any H195 course) for two consecutive semesters leading to the completion of an honors thesis, which must be submitted at least two weeks before the end of the semester in which the student expects to graduate. While enrolled in the honors program, the student will undertake independent advanced study under the guidance of the student’s honors thesis advisor. Upon completion of the program, a faculty committee will determine the degree of honors to be awarded (Honors, High Honors, Highest Honors). Taking into consideration both the quality of the thesis and overall performance in the department, honors will not be granted to a student who does not achieve a minimum cumulative GPA of 3.3 in all undergraduate work in the University by the time of graduation.

Graduate Programs
M.A. and Ph.D. programs are offered in Chinese Language and Literature and in Japanese Language and Literature. Within either area of specialization, students may focus on literary criticism, comparative studies, cultural history, linguistics, a specified period, or the like, but in every case students will be expected to acquire a solid grounding in the classical and modern versions of the primary language.

The primary purpose of our degree training is to prepare students to become scholars and teachers of advanced courses at the university level. Persons aiming solely at modern-language teaching will find the program suited to their needs. Information about the graduate program can be obtained from the department office.
Lower Division Courses

C50. Introduction to the Study of Buddhism. (4) Three hours of lecture per week. This course introduces students to the historical, doctrinal, and cultural contexts in which Buddhism is practiced. It will cover the development of Buddhist thought and practice, from its origins in India to its spread throughout East Asia. The course will also discuss the role of Buddhism in the social and cultural context of its major traditions. Prerequisites: None. (F,SP) Staff

84. Sophomore Seminar. (1-2) Course may be repeated for credit as topic varies. One hour of semina per unit for 15 weeks. This course will examine topics in East Asian Studies not covered by regularly scheduled courses. (F,SP) Staff

98. Directed Group Study for Lower Division Students. (1-4) Course may be repeated for credit as topic varies. One hour of seminars per unit for 15 weeks. Sections 1-2 to be graded on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Small group instruction in topics not covered by regularly scheduled courses. (F,SP) Staff

100. Reading Alternative Space. (4) Three hours of lecture per week. This course is a wide-ranging investigation of the relationship between art and visual practices that are not always recognized as such. It explores the power of artistic creation to shape the writing and reading of poems, songs, and a selection of prose pieces, from the uses of figurative language and prosody to genre and canon formation. In addition to their own writing, students will read a variety of texts, focusing on the materiality of the text. Prerequisites: None. (F,SP) Staff

101. Catastrophe, Memory, and Narrative: Comparative Responses to Atrocity in the 20th Century. (4) Three hours of lecture and one hour of discussion per week. This course will examine the experience and representation of violence and atrocity in the modern world. It will cover the ways in which the experiences of perpetrators, victims, and witnesses are recorded and remembered, and the role of art and literature in the remembrance of atrocity. Prerequisites: None. (F,SP) Tansman

102. Fantastic Histories. (4) Three hours of lecture per week. This course will examine the strategies used by writers to create a global and historical context for understanding contemporary Chinese fiction. It will cover the role of the novel in shaping the identity of the nation-state, the role of fiction in shaping the identity of the nation-state, and the role of fiction in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Jones

103. Writing, Visuality, and the Powers of Images. (4) Three hours of lecture per week. This course will examine the role of images in the construction of identity and national consciousness. It will cover the role of images in shaping the identity of the nation-state, and the role of images in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Schaefer

104. Tales of Two Empires: Literature and History in the Chinese 19th Century. (4) Three hours of lecture per week. This course will explore the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Jones

105. Dynamics of Romantic Core Values in East Asian Premodern Literature and Contemporary Film. (4) Three hours of lecture per week. This course will explore the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Staff

106. Expressing the Ineffable in China and Beyond: The Making of Meaning in Poetic Writing. (4) Three hours of lecture per week. This course will explore the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Staff

107. War, Empire, and Literature in East Asia. (4) Three hours of lecture per week. This course will examine the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Tanino

108. Revising the Classics: Chinese and Greek Poetry in Translation. (4) Three hours of lecture per week. This course will examine the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Ashmore

110. History of the Culture of Tea in China and Japan. (4) Three hours of lecture per week. This course will examine the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Staff

C120. Buddhism on the Silk Road. (4) Three hours of lecture per week. Formerly Buddhism 115. This course will explore the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Staff

C122. Buddhist Meditation: Historical, Doctrinal, and Ethnographic Perspectives. (4) Three hours of lecture and one hour of discussion per week. This course will explore the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Staff

C124. Buddhism and Film. (4) Two to three hours of lecture and three to four hours of discussion/film screening per week. This course will explore the role of literature in shaping the identity of the nation-state, and the role of literature in shaping the identity of the nation-state. Prerequisites: None. (F,SP) Staff
visualization in Buddhist meditation and ritual, con-
testing Asian and Western notions of Buddhist author-
ity, Orientalism, and the role of projection and fantasy in
the construction of representations of Buddhism. The films
will be accompanied by primary and secondary read-
ings in Buddhist history and literature, religious stud-
ies, and film theory. Also listed as Group in Buddhist
Studies C124. (F,SP) Staff

C126. Buddhism and the Environment. (3) Three
hours of philosophical discussion. One is a
division course in Buddhist Studies or consent of
instructor. The thematic course on Buddhist perspec-
tives on nature and Buddhist responses to environ-
mental issues. The first half of the course focuses on
East Asian Buddhist cosmological and doctrinal per-
pectives on the place of the human in nature and
the relationship between the salvific goals of Bud-
dhism and nature. The second half of the course
examines Buddhist ethics, economics, and activism
in relation to environmental issues in contemporary
Southeast Asia, East Asia, and America. Also listed as
Group in Buddhist Studies C126. (F,SP) Williams

C128. Buddhism in Contemporary Society. (4)
Three hours of lecture per week. A study of the Bud-
dhist tradition as it is found today in Asia. The course
will focus on specific living traditions of East, South,
and/or Southeast Asia. Themes to be addressed may
include contemporary Buddhist ritual practices, fun-
eral and mortuary customs; the relationship between
Buddhism and other local religious traditions; the rela-
tionship between Buddhist institutions and the state;
Buddhist modernism and its relationship to the laity;
Buddhist ethics; Buddhist "modernism," and so on.
Also listed as South and Southeast Asian Studies
C145 and Group in Buddhist Studies C128. (F,SP) Staff

C130. Zen Buddhism. (4) Three hours of lecture
and one hour of discussion per week. This course
will introduce students to the Zen Buddhist traditions
of China and Japan, drawing on a variety of disciplinary
perspectives (history, anthropology, philosophy, and
so on). It will explore a range of historiographic and
theoretical problems (problems involved in interpretation)
taunted in understanding a sophisticated religious
tradition that emerged in a time and culture very dif-
ferent from our own. Also listed as Group in Buddhist
Studies C130. (F,SP) Staff

180. East Asian Film: Directors and their Contexts.
(4) Course may be repeated for credit. Three hours of
lecture and one to two hours of discussion/film viewing per
week. Prerequisites: Upper division or graduate standing.
A close analysis of the oeuvre of an East
Asian director in its aesthetic, cultural, and political
contexts. (F,SP)

181. East Asian Film: Special Topics in Genre. (4)
Three hours of lecture and one to two hours of discus-
sion per week. The study of films as categorized either by
industry-identified genres (westerns, horror films, musicals, film noir, etc.) or
broader interpretive modes (melodrama, realism, fantasy, etc.). (F,SP)

188. C-Typed Group Study. (1-4) Enrollment is
restricted; see the "Introduction to Courses and Cur-
ricula" section of this catalog. Hours to be arranged.
Must be taken on a passed/not passed basis. Prereq-
uites: Junior or senior standing. Small group
study of courses offered in a regularly scheduled course.
(F,SP) Staff

199. Independent Study. (1-4) Enrollment is
restricted; see the "Introduction to Courses and Curricu-
la" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prereq-
uites: Junior or senior standing. Independent study in topics not cov-
ered by regularly scheduled courses. (F,SP) Staff

Graduate Courses

200. Proseminar: Approaches to East Asian Stud-
ies. (2,4) Three hours of seminar per week. This course is
a pro-seminar required for all entering graduate
students in the Department of East Asian Lan-
guages and Cultures. While satisfying a requirement of
interest, its purpose is to introduce graduate students
in the program to the major theoretical concerns, ac-
demic issues, and interpretive methodologies rele-
vant to humanistic studies more generally and to the
study of East Asian literature, thought, religion, and
culture in particular. Supervising faculty change from
year to year, as does the focus of the seminar. (F)

202. Close Reading Area Studies: China and Japan
in the World. (2,4) Course may be repeated for credit.
Three hours of seminar per week. This course will
involve an in-depth study of close reading, including
reading that can be relevant to the study of East Asia
with a focus on China and Japan. As we concentrate
on the historical role of philological research, trans-
national, interdisciplinary, and modern, the course
will question the common sense of "civilization," culture,
and "tradition," and explore new ways of asking ques-
tions about text and context, aesthetics and politics,
cultural memory, historical narratives, and regimes of
knowledge. (F,SP) O’Neill

C220. Seminar in Buddhism and Buddhist Texts.
(2,4) Three hours of seminar per week. Content varies
with student interests. The course will normally focus
on classical Buddhist texts that exist in multiple recen-
sions and languages, including Chinese, Sanskrit,
and Tibetan. Also listed as Group in Buddhist Studies
C220. (F,SP) Williams

C240. Readings in Chan and Zen Buddhist Litera-
ture. (2,4) Course may be repeated for credit as topic
varies. Three hours of seminar per week. Prerequi-
tes: Consent of instructor. Formerly Buddhism 225.
This graduate seminar introduces students to
primary sources used in the study of Chan and Zen
Buddhism. It is designed to be of interest to a range
of graduate students working on premodern Chinese
and Japanese culture (literature, philosophy, intellec-
ture) and critical theory. The course will also
introduce students to Asian and Western language
reference tools for the study of East Asian Buddhist
texts, including web resources. The content of the
course will vary from semester to semester to best
accommodate the needs and interests of students.
Also listed as Group in Buddhist Studies C240.
(F,SP) Sharf

Chinese

Instructor approval is recommended for enrollment
in language courses.

Courses numbered 180-189 are lecture courses
given in English.

Lower Division Courses

1A-1B. Elementary Chinese. (5,5) Five hours of lec-
ture per week. Prerequisites: A is prerequisite to B.
1AX-1BX. Elementary Chinese for Mandarin Speakers.
(3,3) Students will receive no credit for 1AX-1BX after
taking 1A. 1BX is to be taken after 1AX. Prerequi-
tes: 1A is prerequisite to 1B; or consent of
instructor. This is the second year of the modern Chi-
inese language sequence. The courses are designed
to help students develop their reading, listening, speak-
ing, and writing skills. 10AX-10BX. Intermediate Chinese
for Mandarin Speakers. (3,3) Students will receive no credit
for 10AX-10BX after taking 10, 10X, or 10B. 10BX is to
be taken after 10AX. Prerequisites: Chinese 18X
or 1BY; 10AX is prerequisite to 10BX; consent of
instructor. This is the second year of the modern Chi-
inese language sequence for students who speak
Mandarin and have elementary-level knowledge of
reading and writing in Chinese.

24. Freshman Seminar. (1) Course may be repeated
for credit as topic varies. One hour of seminar per
week for 15 weeks or two hours of seminar per week
eight weeks. Sections 1 and 3 to be graded on a
passed/not passed basis. Sections 2 and 4 to be
graded on a letter-grade basis. The Freshman Semi-
inar Program has been designed to provide new stu-
dents with the opportunity to explore an intellectual
topic with a faculty member in a small-seminar set-
ing. Freshman seminars are offered in all campus
departments, and topics vary from department to
department and from semester to semester.

39. Freshman/Sophomore Seminar. Course may
be repeated for credit as topic varies. Seminar format.
Prerequisites: Priority given to freshmen and sopho-
mores. This is a one-semester seminar for upper
division students the opportunity to explore an intel-
lectual topic with a faculty member and a group of
peers in a small-seminar setting. These seminars are
class specific and campus specific. Topics vary from
department to department and from semester to
semester.

84. Sophomore Seminar. (1,2) Course may be
repeated for credit as topic varies. One hour of semi-
inar per week for 15 weeks, or one-half hour of semi-
inar per week for 10 weeks. Two hours of seminar per
week for eight weeks. Three hours of seminar per
week for five weeks. Sections 1-2 to be graded on a
passed/not passed basis. Sections 1 and 2 may be offered
to students in letter-grade basis. Prerequisites: At discretion of instructor.
Sophomore seminars are small interactive courses
offered by faculty members in departments all across
the campus. Sophomore seminars serve as an opportu-
nity for close, regular intellectual contact between faculty

*Professor of the Graduate School
Recipient of Distinguished Teaching Award
members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Distinct Group Study for Lower Division Students. (1-4) Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Lower division standing. Students must be enrolled in the lower division instruction to which they are assigned; hours not covered by regularly scheduled courses. (F,SP)

99. Independent Study for Lower Division Students. (1-4) Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Lower division standing, 3.5 GPA. Independent study in topics not covered by regularly scheduled courses. (F,SP)

Upper Division Courses

100A-100B. Advanced Chinese. (5:5) Five hours of lecture per week. Prerequisites: 108A; 100A is prerequisite to 100B. Reading and discussion, in Chinese, of modern Chinese texts, literary, political, and general, in a variety of styles. Assignments to develop oral and written skills.

100AX-100BX. Advanced Chinese for Mandarin Speakers. (3:3) Students will receive no credit in 100AX-100BX after taking 100 or 100A-100B. Three hours of lecture per week. Prerequisites: Chinese 108B; 100AX is prerequisite to C100BX; consent of instructor. Advanced Chinese for students who speak Mandarin and have a pre-intermediate level of knowledge of reading and writing in Chinese. The goal of this course is to introduce modern Chinese society through reading materials and discussion. The reading materials include stories, essays, and plays, mostly by leading writers of recent decades.

101. Fourth-Year Readings: Literature. (4) Three hours of lecture per week. Prerequisites: 100B or 100BX; consent of instructor. This course is designed to further enable abilities in speaking, reading, listening, and writing. Students will read Chinese newspapers and other sources of social, political, and cultural writings. They will critique their works as part of the class requirements. (F,SP)

110A. Introduction to Literary Chinese. (4) Three hours of lecture per week. Prerequisites: 108B or 100BX; consent of instructor. This course is designed to further improve abilities in speaking, reading, listening, and writing. Students will read Chinese newspapers and other sources of social, political, and cultural writings. They will critique their works as part of the class requirements. (F,SP)

110B. Introduction to Literary Chinese. (4) Three hours of lecture per week. Prerequisites: 110A. Formerly 2B. The second half of a one-year introductory course in literary Chinese, introducing key features of grammar, syntax, and usage, along with the intensive study of a set of readings in the language. Readings are drawn from a variety of Chinese literary sources. (F,SP)

115. Modern Chinese Literature. (4) Three hours of lecture per week. Prerequisites: 100B or 100BX (may be taken concurrently). This course will introduce students to selected works of modern Chinese fiction produced in the first half of the 20th century, as well as their cultural and historical context. How did writers such as Lu Xun, Shen Congwen, Eileen Chang, and others attempt to make their mark on a world profoundly dislocated by the forces of colonialism, war, and revolution? We will examine the politics of literary style, questions of nationalism, representations of gender, and modernity in these texts. All primary texts are presented in the original Chinese, supplemented by critical and biographical articles in English.

156. Modern Chinese Literature. (4) Three hours of lecture per week. Prerequisites: 100A or 100BX (may be taken concurrently). This course will introduce students to selected works of modern Chinese fiction produced in the first half of the 20th century, as well as their cultural and historical context. How did writers such as Lu Xun, Shen Congwen, Eileen Chang, and others attempt to make their mark on a world profoundly dislocated by the forces of colonialism, war, and revolution? We will examine the politics of literary style, questions of nationalism, representations of gender, and modernity in these texts. All primary texts are presented in the original Chinese, supplemented by critical and biographical articles in English.
182. Death and Funerary Practice in China. (4) Three hours of lecture per week. This course examines funerary practices in Chinese history, as a means to understand the interrelationships between the body, the function of mourning in social ritual, and the conceptions of the afterlife. We will consider the history of burial practice and tomb ornamentation, and the role of imperial tombs in the construction of authority. We will pay particular attention to the way in which the disposition of the corpse functioned as a liminal space onto which debates about cultural values could be projected. Such debates include discussions about the late Qing understanding of mourning in Warring States thought, filiality and cremation in Confucian discourse, mumification and auto-cremation in Buddhism, and issues surrounding burial in contemporary China. (F,SP) Staff

183. Traditional Chinese Culture. (4) Three hours of lecture per week. This course will consist of lectures that provide a general overview of traditional Chinese culture from the early Zhou through the late medieval and early modern times. Special emphasis is given to the origins and development of philosophy, art, religion, prose, and poetry. The subjects to be covered include the Chinese language and writing system, the Chinese classical dynasties, and the development of Chinese society, and the birth of Chinese fiction. (F,SP)

184. Sonic Culture in China. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 7A or 7B, and/or previous coursework in either Chinese language and culture, or music. This course explores the aesthetics and politics of sound—both musical and otherwise—in Chinese cultures. Through musical discourse and literary discourses on music, we trace the ways in which sound has been produced, heard, and understood and debated in both pre-modern and modern China. Topics include Confucian musical theory, Daoist hermeneutics, music, and poetry; the impact of recording technology and Western music; urban popular music, sound and cinema, and contemporary soundscapes. Also listed as Music C134C.

185. Introduction to Chinese Philosophy. (4) Three hours of lecture per week. Formerly Oriental Languages 167. A survey of the history of Chinese philosophy from late Ch’ing times through the Ch’ing dynasty. The course is intended for students of any major, Chinese thinkers including Confucius, Mencius, Hsun Tzu, Mo Tzu, Chuang Tzu, Tung Chung-shu, Chu Hsi, Wang Yang-ming, and Tai Chen. One of the major themes of the course is an analysis of the various interpretations of the central texts of Chinese ethical theory and the role of language in moral education. Also listed as Philosophy C167. (F) Staff

186. Confucius and His Interpreters. (4) Three hours of lecture per week. This course examines the different spheres of meaning that have been formed through interpretations of the person and teachings of Confucius. We will consider how the words attributed to Confucius were understood by his contemporaries and by later generations, situating these readings within the social and political order of their times. We will examine how Confucian ideas have shaped government, social roles, and intellectual life of Chinese thought. Also included in seminars on the history, development, and analysis of dramatic texts. Topic of the course changes with the year.

187. Historical Documents. (2,4) Three hours of seminar per week. Prerequisites: Consent of instructor: two other classical Chinese courses. Readings in classical Chinese texts. Topics vary from semester to semester and include poetry, biography, history, and external relations. Three hours of seminar per week. (F,SP)

188. Popular Culture in 20th-Century China. (4) Three hours of lecture per week. This course is an introduction to media culture in 20th-century China, with an emphasis on photography, cinema, and popular music. The course places these productions in historical and cultural context, examining the complex interwoven world of culture, technology, politics, and commerce in China, Hong Kong, and Taiwan from the turn of the last century to the beginning of the 21st. Students will also be introduced to a number of approaches to thinking about and analyzing popular cultural phenomena.

189. Chinese Landscapes: Space, Place, and Travel. (4) Three hours of lecture per week. Prerequisites: One previous course in literature or cultural studies. What do landscapes "do"? How do landscape images and travel narratives mediate experiences of land, nature, and other peoples? How do landscapes map one’s place in the world, shaping both cultural identities and real geographic spaces? Can landscapes travel? This course explores such questions by examining one of the world’s longest-running traditions of landscape representation. We will consider such landscape genres as poetry, prose description, fiction, travel narrative, maps, painting, and photography, and consider their work across China’s long history of imperial expansion, colonization, and globalization. We will also consider China’s places in thinking about landscape and travel in the West. (F,SP) Schaeffer

H195A-H195B. Honors Course. (2-5,5) Hours to be arranged. Credit and grade to be awarded on completion of sequence. Prerequisites: Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall. Directed independent study and preparation of semester-long project under the supervision of at least two Honors candidates in East Asian Languages (for description of Honors Program, see the “Index” in this catalog).

190. Directed Group Study. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses. (F,SP)

191. Independent Study. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Junior standing. Independent study in topics not covered by regularly scheduled courses. (F,SP) Graduate Courses

220. Seminar in Philological Analysis of Ancient Chinese Texts. (4) Three hours of seminar per week. Readings vary from year to year and are drawn from a wide variety of philosophical and historiographical sources.

222. Early Chinese Thought. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: 161 or 165. Graduate seminar in modern Chinese literature. Topics vary from year to year. (F,SP) Staff

223. Readings in Chinese Buddhist Texts. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor: two other classical Chinese courses. An analytical exploration of major genres of Buddhist literature in classical Chinese, including translations of Sanskrit and Central Asian scriptures. Chinese commentaries on Buddhist scriptures, and Chinese Zen, Chan, and sectarian works. It is intended for graduate students who already have some facility in classical Chinese. It will also serve as a tools and methods course, covering the methodology of Chinese textual criticism. Prerequisites: At least one year of Classical Chinese. An analytical exploration of the central texts of Warring States (453-221 BCE) philosophy. (F,SP) Graduate Courses

234. Texts on the Civilization of Medieval China. (4) Three hours of seminar per week. Topics vary from year to year. (F,SP) Staff

238. Seminar in Texts on Chinese Drama and Dramatic Criticism. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: 2B and 100B. The course examines a number of Chinese dramatic works through the lens of Chinese textual production. Detailed close reading of the texts and training in the methodologies of solving problems of lexicon, theme, structure, imagery, and meter are required. Topics vary from year to year. (F,SP) Staff

239. Chinese Landscapes: Space, Place, and Travel. (4) Three hours of seminar per week. Prerequisites: Consent of instructor: two other classical Chinese courses. Readings in classical Chinese texts. Topics vary from semester to semester and include poetry, biography, history, and external relations. Three hours of seminar per week. (F,SP)

242A-242B. Genre and Method in Traditional Chinese Literature. (2,4) Three hours of lecture per week. Prerequisites: 2B and 100B. The course examines a number of Chinese dramatic works through the lens of Chinese textual production. Detailed close reading of the texts and training in the methodologies of solving problems of lexicon, theme, structure, imagery, and meter are required. Topics vary from year to year. (F,SP) Staff

254. Chinese Literatures and Cultures in Global Context. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. This course explores relations of Chinese literature and culture to other parts of Asia, Africa, Latin America, and the West. The course seeks to engage students in comparative perspectives, and ranging widely across different historical periods. Specific topics vary from year to year.

255. Late Imperial Fiction and Drama. (2,4) Three hours of seminar per week. This course examines canonical texts of the late-imperial period, placing them in the context of literary culture of the Ming-Qing. The course focuses on a different set of texts each time it is taught; the aim is to introduce students to the primary issues in scholarship of late-imperial fiction and drama over a period of several years.

256. Early 20th-Century Chinese Literature. (2,4) Three hours of seminar per week. This course examines the canonical texts of the early 20th-century Chinese literary culture, including first-person fiction, autobiography, critical writings on subjectivity and modernity. (SP)

257. Modern Chinese Literature. (2,4) Three hours of seminar per week. Prerequisites: Reading knowledge of modern Chinese. Graduate seminar in modern Chinese literature. Topics vary from year to year. (F,SP) Staff

266. Seminar in Chinese Linguistics. (2,4) Three hours of seminar per week. Prerequisites: 161 or 165. The topic varies according to the interests of the participants: dialectology, phonology, or grammar.

280. Modern Chinese Cultural Studies. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Reading knowledge of modern Chinese. Directed study of modern Chinese literary and media cultures. Course provides students with background knowledge about the development of Chinese civilization, and possible applications to theoretical problems and methodological approaches. Topics include print culture, cinema, popular music, and material culture. (F,SP) Staff

298. Directed Study for Graduate Students. (1-8) Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor: two other classical Chinese courses. Advanced study of various topics not covered by regularly scheduled courses. Enrollment is arranged. Must be taken on a pass/no pass basis. (F,SP) Staff

299. Thesis Preparation and Related Research. (1-8) Must be taken on a pass/no pass basis. Prerequisites: Consent of thesis graduate supervisor and graduate adviser. (F,SP)
78. Introduction to Modern Japanese Literature and Culture. (4) Students will receive no credit for 7B after taking 182B. Students can remove a deficiency in 182B by completing one hour of lecture and one hour of discussion per week. An introduction to Japanese literature in translation in a two-semester sequence. 7B provides a survey of important works of 19th- and 20th-century Japanese fiction, poetry, and cultural criticism. The course will explore the manner in which writers responded to the challenges of industrialization, internationalization, and war. Topics include the representations of traditions and modernity, the impact of Westernization on the constructions of the self and gender, writers and the wartime state, literature of the atomic bomb, and post-modern fantasies and aesthetics. All readings are in English translation. Techniques of critical reading and writing will be introduced as an integral part of the course. (F,SP) Staff

10A-10B. Intermediate Japanese. (5,5) Students will receive no credit for 10A-10B after taking 10. Five hours of lecture per week. Prerequisites: 1A; 1B is prerequisite to 1B. In this course, students will develop basic communicative skills in Japanese and an understanding of Japanese society and culture. Students will learn vocabulary and grammar to discuss real-life situations such as how to talk about themselves, their studies, their family and friends, the weather, and many other topics. Students will learn how to read and write in Japanese from the onset, learning approximately 150 kanji (Chinese characters) by the end of the semester.

101-10B. Supplementary Work in Grammar—Intermediate. (1-1) One hour of lecture per week. Must be taken on a passed/not passed basis. These supplementary courses are designed for students who are concurrently enrolled in 1A and 1B to enable their acquisition of a better understanding of Japanese grammar in general and clause linkage in particular. (F,SP) Staff

101AG-10B. Supplementary Work in Kanji—Intermediate. (1;1) One hour of lecture per week. Must be taken on a passed/not passed basis. These supplementary courses are designed for students who are concurrently enrolled in 1A and 1B to enable their acquisition of a better understanding of Japanese grammar in general and clause linkage in particular. (F,SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a small group of peers in a seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a small group of peers in a seminar setting. These seminars are offered in all campus departments; topics vary from department to department and semester to semester.

48. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for 15 weeks or two hours of seminar per week for eight weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: Discretion of instructor. Sophomore seminars are offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year.

The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Study for Lower Division Students. (1-4) Enrollment is restricted; see the "Introductory Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Small group instruction in topics not covered by regularly scheduled courses. (F,SP)

99. Independent Study for Lower Division Students. (1-4) Enrollment is restricted; see the "Introductory Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Independent study in topics not covered by regularly scheduled courses.

Upper Division Courses

100A-100B. Advanced Japanese. (5,5) Students will receive no credit for 100A-100B after taking 100. Five hours of lecture per week. Prerequisites: 10B; 10A is prerequisite to 10B. This course aims to develop further context-specific skills in speaking, listening, reading, and writing. It concentrates on enabling students to use acquired grammar and vocabulary with more confidence. Course materials include newspapers, magazines, and a selection of Japanese literature as sources of discussions. Students learn various writing styles and in-depth aspects of Japanese culture.

100S. Japanese for Sinologists. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Graduate standing; 10B and Chinese 100B or equivalents. Students will be trained to read, analyze, and translate modern Japanese scholarship on Chinese subjects. A major purpose of the course is to prepare students to take reading examinations in Japanese. The areas of scholarship to be covered are: politics, popular culture and religion, sociology and history, as well as areas suggested by students who actively engage in these areas. Two readings in each area will be assigned, one by the instructor and the second by a student participant.

101. Freshman Seminar. (1) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100B or consent of instructor. This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Readings include Japanese newspapers, magazines, and a selection of Japanese literature as sources of discussions. Students learn various writing styles and in-depth aspects of Japanese culture.

102. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: 100B or consent of instructor. This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Students read a variety of Japanese texts as sources for discussions to deepen their understanding of Japanese society and people.

103. Sophomore Seminar. (4) Three hours of lecture per week. Prerequisites: 100B or consent of instructor. This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Students read a variety of Japanese texts as sources for discussions to deepen their understanding of Japanese society and people.

104. Sophomore Seminar. (4) Three hours of lecture per week. Prerequisites: 100B or consent of instructor. This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Students read a variety of Japanese texts as sources for discussions to deepen their understanding of Japanese society and people.
sources for discussions to deepen their understanding of Japanese society and people. (F,SP) Staff

111. Fifth-Year Japanese A. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 102 or equivalent; basic knowledge of, and information retrieval skills related to, the Internet. This course is designed for students who have studied Japanese for at least four years (540 hours). It aims to further develop their reading, writing, speaking, and listening skills with special emphasis on essay and research paper writing on topics relevant to the student’s major or intended career. Part of this written work will become the material on which the instructor will give an end-of-the-term oral presentation. Students are expected to fully prepare for and dynamically participate in the discussions and debates that occur in class.

112. Fifth-Year Japanese B. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 102 or equivalent; basic knowledge of, and information retrieval skills related to, the Internet. This course is designed for students who have studied Japanese for at least four years (540 hours). It aims to further develop their reading, writing, speaking, and listening skills with special emphasis on essay and research paper writing on topics relevant to the student’s major or intended career. Part of this written work will become the material on which the instructor will give an end-of-the-term oral presentation. Students are expected to fully prepare for and dynamically participate in the discussions and debates that occur in class.

115. Japanese Buddhism. (4) Three hours of lecture per week. A critical survey of the main themes in the history of Japanese Buddhism as they are treated in modern scholarship. The course covers the transmission of Buddhism from China and Korea to Japan; the subsequent evolution in Japan of the Tendai, Shingon, Pure Land, Nichiren, and Zen schools of Buddhism; the organization and function of Buddhist institutions (monastic and lay) in Japanese society; the interaction between Buddhism and other modes of religious belief and practice prevalent in Japan, notably those that go under the headings of “Shinto” and “folk religion.” Also listed as Group in Buddhist Studies 115S.

120. Introduction to Classical Japanese. (4) Three hours of lecture per week. Prerequisites: 10B. An introduction to classical Japanese, defined as the native language of the ninth to the 14th centuries. The course emphasizes the acquisition of the basics of classical Japanese grammar. Thereafter students will learn to read and translate select classical texts, followed by extensive discussion of literary, historical, and religious contexts and themes.

130. Classical Japanese Poetry. (4) Three hours of lecture per week. Prerequisites: 120. An introduction to the critical analysis and translation of traditional Japanese poetry, a genre that reaches from early 7th century poetry to the modern period, including the haiga, tanka, and renga forms. Topics include the poetry of Sho-ka-shu, Izumi Shikibu, and Shiki Shinden-yu. Students are required to have advanced knowledge of Japanese. No previous linguistics training is required. (F,SP) I. S. Hasegawa

160. Introduction to Japanese Linguistics: Grammar. (4) Three hours of lecture per week. Prerequisites: 100A or equivalent (may be taken concurrently). This course will provide an introduction to the historical and diachronic production and reception of key Japanese literary and film texts; how issues of gender, ethnicity, social roles, and national identity specific to each text address changing economic and social conditions in postwar Japan.

161. Introduction to Japanese Linguistics: Usage. (4) Three hours of lecture per week. Prerequisites: 100B or equivalent (may be taken concurrently). This course will provide an introduction to the historical and diachronic production and reception of key Japanese literary and film texts; how issues of gender, ethnicity, social roles, and national identity specific to each text address changing economic and social conditions in postwar Japan.

163. Translation: Theory and Practice. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent; basic knowledge of, and information retrieval skills related to, the Internet. This course is designed for students who have studied Japanese for at least four years (540 hours). It aims to further develop their reading, writing, speaking, and listening skills with special emphasis on essay and research paper writing on topics relevant to the student’s major or intended career. Part of this written work will become the material on which the instructor will give an end-of-the-term oral presentation. Students are expected to fully prepare for and dynamically participate in the discussions and debates that occur in class.

170. Classical Japanese Literature in Translation. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course explores the historical and intellectual evolution of Japanese literature and poetry from the first half of the 20th century. Topics will vary. (F,SP) Staff

174. Japanese Buddha in Diaspora. (4) Three hours of lecture per week. Prerequisites: One lower-division course in Buddhist Studies or consent of instructor. This course focuses on the transmission of Buddhist theories and practices in the modern period, including the encounter with modernity, colonialism, and immigration history. Students will critically analyze Japanese Buddhism’s adaptation to the social, political, and religious climate of the West. Topics will be analyzed with the Mahayana, Chisan, Christianity, and the West. Regions covered include Manchuria, Korea, Hawaii, the U.S., Canada, and Brazil. (F,SP) Staff

175. Archaeology of East Asia. (4) Three hours of lecture per week. Prehistoric and protohistoric archaeology in China, Japan, and Korea. Also listed as Anthropology 125SA. (F,SP)

176. Archaeology and Japanese Identities. (4) Students will receive no credit for C176 after taking Anthropology 125B. Three hours of lecture per week. Course explores stereotypical images of traditional Japanese culture and people through archaeological analysis. Particular emphasis will be placed on the role of ways in which people and cultural ideas have been and are continued to continue to be transmitted. (F,SP) Staff

180. Ghosts and the Modern Literary Imagination. (4) Three hours of lecture per week. This course explores the supernatural in contemporary Japanese literature, focusing on the various ways in which ghosts and spirits have been and are continued to be transmitted. (F,SP) Staff

183. Introduction to Japanese Cinema. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course will consider Japanese cinema from its earliest days to contemporary cinema. Upon completion of this course, students will be able to critically analyze the interactions between early Japanese film and contemporary cinema. We will consider the development of Japanese film, discussing issues such as production, style, and content. (F,SP) Staff

185. Introduction to Japanese Cinema. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course will consider Japanese cinema from its earliest days to contemporary cinema. Upon completion of this course, students will be able to critically analyze the interactions between early Japanese film and contemporary cinema. We will consider the development of Japanese film, discussing issues such as production, style, and content. (F,SP) Staff

190. Introduction to East Asian Studies. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course will consider Japanese cinema from its earliest days to contemporary cinema. Upon completion of this course, students will be able to critically analyze the interactions between early Japanese film and contemporary cinema. We will consider the development of Japanese film, discussing issues such as production, style, and content. (F,SP) Staff

191. East Asian Languages and Cultures / 213

193. Modern Japanese Literature in Translation. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course surveys modern Japanese fiction and poetry in the first half of the 20th century. Topics will vary. (F,SP) Staff

194. Edo Literature. (4) Three hours of lecture per week. Prerequisites: 120. Critical reading and translation of important literary texts from the Edo period, including poetic diaries, merchant fiction, and theon drama.

195. Japanese Historical Documents. (4) Three hours of lecture per week. Prerequisites: 120. Writings in the Japanese vernacular constitute only a limited part of the total pre-modern Japanese written corpus. Until the 20th century, the preferred medium for most historical texts and male diaries was Sino-Japanese (kanbun). Familiarly with the grammar of this extraordinary language is therefore essential for all students of pre-modern Japanese disciplines.

196. Modern Japanese Literature. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 100B (may be taken concurrently). This course is an introduction to Japa- nese poetry, a genre that reaches from early 7th century poetry to the modern period, including the haiga, tanka, and renga forms. Topics may include the poetry of Sho-ka-shu, Izumi Shikibu, and Shiki Shinden-yu. Students are required to have advanced knowledge of Japanese. No previous linguistics training is required. (F,SP) I. S. Hasegawa

132. Pre-Modern Japanese Diary (Nikki) Literature. (4) Three hours of lecture per week. Prerequisites: 120. This course focuses on narrative diaries (nikki), written by post-Meiji period women authors such as Shimazaki Tôka and Kashiwagi Yōko, as important sources for discussions to deepen their understanding of Japanese society and people. (F,SP) Staff

142. Japanese Medieval Prose. (4) Three hours of lecture per week. Prerequisites: 120. Formerly 126. Critical reading and translation of selections from medieval prose narrative texts, e.g., The Tale of the Heike.

144. Edo Literature. (4) Three hours of lecture per week. Prerequisites: 120. Critical reading and translation of important literary texts from the Edo period, including poetic diaries, merchant fiction, and theon drama.

146. Japanese Historical Documents. (4) Three hours of lecture per week. Prerequisites: 120. Writings in the Japanese vernacular constitute only a limited part of the total pre-modern Japanese written corpus. Until the 20th century, the preferred medium for most historical texts and male diaries was Sino-Japanese (kanbun). Familiarly with the grammar of this extraordinary language is therefore essential for all students of pre-modern Japanese disciplines.

155. Modern Japanese Literature. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 100B (may be taken concurrently). This course is an introduction to Japa- nese poetry, a genre that reaches from early 7th century poetry to the modern period, including the haiga, tanka, and renga forms. Topics may include the poetry of Sho-ka-shu, Izumi Shikibu, and Shiki Shinden-yu. Students are required to have advanced knowledge of Japanese. No previous linguistics training is required. (F,SP) I. S. Hasegawa

173. Modern Japanese Literature in Translation. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course surveys modern Japanese fiction and poetry in the first half of the 20th century. Topics will vary. (F,SP) Staff
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as well as performance laboratories with experienced teachers and practitioners. The course gives an overview of each of these major forms, with focus on particular plays or works and their performance traditions; literary, cultural, and institutional backgrounds; and the central theoretical questions that arise with the study of each. (F,SP)

188. Japanese Visual Culture: Introduction to Anime. (4) Three hours of lecture per week. This course is an introduction to Japanese anime, from its earliest forms (in relationship to manga) to recent digital culture, art, and games. We will analyze and study mainly animated films and read the critical work they inspired. We will address such issues as cultural memory and apocalyptic imagination, robots and the post-human, cities, nature, and the transnational; gender, shoji, and the aesthetics of “cute,” as well as consider specific issues in the theoretical understanding of anime within technology and media theory. (F,SP) O'Neill

H195A-H195B. Honors Course. (2-5;2-5) Hours to be arranged. Credit and grade to be awarded on completion of sequence. Prerequisites: Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall. Directed independent study and preparation of senior honors thesis. Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see page 4). (F,SP) (In this catalog. (F,SP) O'Neill

198. Directed Group Study. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be on a passed/not passed basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses. (F,SP) Graduate Courses

C225. Readings in Japanese Buddhist Texts. (2.4) Course may be repeated for credit. Three hours of seminar per week. This graduate seminar serves as an introduction to a broad range of Japanese Buddhist literature belonging to different historical periods and genres, including: (1) liturgical texts; (2) monastic records, rules, and ritual manuals; (3) doctrinal treatises; (4) biographies of monks; and (5) histories of Buddhism in Japan. The seminar is designed to be of interest to a range of graduate students working on premodern Japanese culture (literature, philosophy, intellectual history, religion, art, etc.). Students are required to attend to all the readings in the original languages, which are classical Chinese (Kanbun) and classical Japanese. The seminar will also serve as a “tools and methods” course, covering basic reference works for the study of Japanese Buddhism as well as secondary scholarship in Japanese. The content of the course will be adjusted from semester to semester to accommodate the needs and interests of the students. Also listed as Group in Buddhist Studies C225. (F,SP) Staff

230. Seminar in Classical Japanese Poetry. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Two semesters of classical Japanese. Topics run from Japan’s earliest extant anthology of vernacular literature (Man’yoshu) to late-medieval linked-verse (renge) and Edo haikai.

232. Japanese Bibliography. (2.4) Three hours of seminar per week. Prerequisites: Reading ability in modern Japanese and some Japanese helpful but not required. An introduction to research tools for Japanese studies. The course gives primary consideration to literary sources but also presents an overview of basic tools in handling Japanese primary sources, bibliographical citation, lexicography, history, religion, fine arts, geography, personal names, biographies, genealogies, and calendrical calculation. Internet access is required.

234. Seminar in Classical Japanese Drama. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Two semesters of classical Japanese. Topics include No, joruri, and early puppet theatre.

240. Seminar in Classical Japanese Texts. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Two semesters of classical Japanese. Topics may include several types of premodern Japanese drama along with narrative texts in order to explore the limits of significance of genre distinctions.

242. Seminar in Medieval Japanese Texts. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Two semesters of classical Japanese. The seminar examines several types of premodern Japanese drama along with narrative texts in order to explore the limits of significance of genre distinctions.

255. Seminar in Prewar Japanese Literature. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Graduates standing and consent of instructor. Reading and critical evaluation of selected texts in pre-war (roughly the 1860s through the 1940s) Japanese literature and supervision and gradenaz. Texts change with each offering of the course.

259. Seminar in Postwar Japanese Literature. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Graduate standing and permission of instructor. Reading and critical evaluation of selected texts in post-war (roughly the 1940s through the present) Japanese literature and literary and cultural criticism. Texts change with each offering of the course.

269. Seminar in Japanese Linguistics. (2.4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: 162 or consent of instructor. The topic varies according to the interests of the participants: dialectology, phonology, or syntax and semantics. Hasegawa.

298. Directed Study for Graduate Students. (1-6) Hours to be arranged. Special tutorial or seminar on selected topics not covered by available courses or seminars. (F,SP)

299. Thesis Preparation and Related Research. (1-8) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of thesis advisor and graduate committee. (F,SP)

601. Individual Study for Master’s Students. (1-8) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the major field advisor, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the major field advisor, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D. (F,SP)

Korean

Instructor approval is recommended for enrollment in language courses.

Courses numbered 180-189 are lecture courses given in English.

Lower Division Courses

1A-1B. Elementary Korean. (5;5) Five hours of lecture per week. Prerequisites: 1A is prerequisite to 1B; or consent of instructor. These courses are designed for students who have little or no prior knowledge of the Korean language. With emphasis on speaking, listening, writing, and reading skills, the course will introduce the basic grammar of the Korean language. The courses are also intended to introduce certain cultural aspects through media sources and various activities. 1AX-1BX. Elementary Korean for Heritage Speakers. (5;5) Students will receive no credit for 1AX-1BX after taking 1 or 1A-1B. Five hours of lecture per week. Prerequisites: 1A is prerequisite of instructor. These courses are designed for students who already have elementary comprehension and speaking skills in Korean and have minimum exposure to written or oral language material. 7A. Introduction to Modern Korean Literature and Culture. (4) Students will receive no credit for 7A after taking 187A. Students can receive adeficient grade in 187A by taking 7A. Three hours of lecture per week. Credit is given for pre-Korean, post-Korean literature and culture from the 7th century to the 20th century, focusing on the relation between literary texts and various aspects of performance tradition. Topics include literati culture, gender relations, humor, and material culture. Texts to be examined include ritual songs, sijo, kasa, p’ansori, prose narratives, art, and contemporary media representation of performance traditions. All readings are in English. (F,SP)

7B. Introduction to Korean Modern Literature and Culture. (4) Students will receive no credit for 7B after taking 187B. Students can receive adeficient grade in 187B by taking 7B. Three hours of lecture per week. A survey of modern Korean literature and culture in the 20th century, focusing on the modernist aesthetics in both North and South Korea. Topics include “new woman” narratives, urban culture, colonial modernity, war and trauma, and diaspora. Texts to be examined include works of fiction, poetry, art, and film. All readings are in English. (SP) Staff

10A-10B. Intermediate Korean. (5;5) Five hours of lecture per week. Prerequisites: 1B; 10A is prerequisite to 10B; or consent of instructor. This is a second-year course in modern Korean with equal attention given to the development of oral language skills and to providing an introduction to literary sources but also presents an overview of basic tools in handling Japanese primary sources, bibliographical citation, lexicography, history, religion, fine arts, geography, personal names, biographies, genealogies, and calendrical calculation. Internet access is required.

10AX-10BX. Intermediate Korean for Heritage Speakers. (5;5) Students will receive no credit for 10AX-10BX after taking 10A or 10B-10B. Five hours of lecture per week. Prerequisites: 10AX is prerequisite to 10BX. Intermediate Korean for students whose Korean proficiency level is higher in speaking than in reading or writing due to Korean-heritage background. (SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of students. Seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

99. Independent Study for Lower Division Students. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Small group instruction in topics not covered by regularly scheduled courses. (F,SP)

99. Independent Study for Lower Division Students. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Small group instruction in topics not covered by regularly scheduled courses.

Upper Division Courses

100A-100B. Advanced Korean. (4;4) Three hours of lecture per week. Prerequisites: 10B; 100A is prerequisite to 100B; or consent of instructor. This is a second-year course in modern Korean with emphasis on acquisition of advanced vocabulary and grammatical structure. Approximately 100 Sino-Korean characters will be introduced in each semester. Students will gain exposure and knowledge of advanced-level
Korean by reading authentic texts and writing short compositions, summaries, essays, and critical reviews. Small group discussions will enhance speaking skills.

100AX-100BX. Advanced Korean for Heritage Speakers. (4-4) Three hours of lecture per week. Prerequisite: 100B. This course is prerequisite to 100BX. Advanced Korean for students whose Korean proficiency level is higher in speaking than in reading or writing due to Korean-heritage background. (F,SP) Staff

101. Fourth-Year Readings—Literature. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisite: 100B. An advanced course in the reading and analysis of literary texts in modern Korean. Lectures, written assignments, and practice in the use of standard reference tools will be emphasized, with the goal of preparing students to do independent research in Korean.

102. Fourth-Year Readings—Social Sciences and History. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisite: 100B. An advanced course in the reading and analysis of specialized texts in modern Korean drawn from history, sociology, economics, etc. Advanced conversation, writing skills, and practice in the use of standard reference tools will also be emphasized, with the goal of preparing students to do independent research in Korean.

111. Fifth-Year Korean A. (4) Three hours of lecture per week. Prerequisite: 102. This course is designed to increase the students’ proficiency to advanced-high level in all aspects of modern Korean; it aims to prepare students for research or employment in a variety of Korea-related fields. Text materials are drawn from authentic sources including modern Korean literature, film, intellectual history, and readings on contemporary issues. Radio and TV broadcasts will also be included in the teaching materials. Texts will be selected, in part, according to student interests. With the instructor’s guidance, students will conduct research projects based on specialized readings in their own fields of study. The research projects will be presented both orally and in written form at the end of the semester. (F,SP) Staff

112. Fifth-Year Korean B. (4) Three hours of lecture per week. Prerequisite: 102. This course is designed to increase the students’ proficiency to advanced-high level in all aspects of modern Korean; it aims to prepare students for research or employment in a variety of Korea-related fields. Text materials are drawn from authentic sources including modern Korean literature, film, intellectual history, and readings on contemporary issues. Radio and TV broadcasts will also be included in the teaching materials. Texts will be selected, in part, according to student interests. With the instructor’s guidance, students will conduct research projects based on specialized readings in their own fields of study. The research projects will be presented both orally and in written form at the end of the semester. (F,SP) Staff

130. Genre and Occasion in Traditional Poetry. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisite: 100B or equivalent. This course will examine traditional hyangga, sijo, kasa, hansi, and akchang poetry, and consider the performative and cultural contexts of these genres. Particular attention will be given to the ideas of lyricism, modernism, and identity in the context of the colonial occupation of Korea. (F,SP) Shin

150. Modern Korean Poetry. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisite: 100B or equivalent. This course will examine the works of Korean poets in the first half of the 20th century and will consider the formation of modern Korean poetry. Particular attention will be given to the ideas of lyricism, modernism, and identity in the context of the colonial occupation of Korea. (F,SP) Shin

155. Modern Korean Fiction. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisite: 100B or equivalent. This course surveys contemporary Korean literature, focusing on the separate development of fiction, poetry, literary criticism, and visual media. Emphasis will be placed on the texts, while considering various issues involving postcolonial cultural production: war and trauma, gender and labor, political violence and presentation, modernization and deconstruction, and diaspora. Topics will vary. (F,SP) Shin

153. Translation: Theory and Practice. (4) Three hours of lecture per week. Prerequisite: 100B or equivalent. This course will provide an overview of the considerations that a translator must take into account when approaching a Korean text. Special attention will be given to linguistic differences between Korean and English as well as cross-cultural differences in stylistics. Texts to be considered are drawn from both expository and literary writings in Korean. By means of translating selected texts in English, students will acquire abilities to recognize common translation problems, explore methods for finding solutions, and evaluate accuracy and communicative effectiveness of translation. (F,SP) Staff

180. Critical Approaches to Modern Korean Literature. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 100B or equivalent. This course introduces students to influential critical approaches to modern Korean literature. By means of translating selected texts in English, students will acquire abilities to recognize common translation problems, explore methods for finding solutions, and evaluate accuracy and communicative effectiveness of translation. (F,SP) Staff

185. Picturing Korea. (4) Three hours of lecture per week. This course explores the role of modern visual media in shaping geopolitical, cultural, and historical imaginations of Korea during the last hundred years. Drawing examples from photographs, films, and literature, produced in and outside Korea, the course will closely examine the ways in which scholarly inquiries have been raised and pursued and engage in discussions of the formation of the fields, analytical approaches, and possibilities for critical intervention. Emphasis will be on the late Choson development of literary criticism and an array of modern scholarly approaches to premodern literary genres and traditions. The course will proceed by closely examining the major scholarship on the following thematically arranged areas of inquiry: philological moments; genre theories on Sijo and Hansi; Imjin War, Manchu Invasion, “practical learning” and vernacular fiction; oral and reexamination; art collectors and “true view” school; and the making of the national history of literature. The course is open to graduate students in all fields. Topics will vary. (F,SP) Shin

199. Independent Study. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a pass/fail basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses. (F,SP)

200. Special Topics in Korean Literature for Graduate Students. (2,4) Course may be repeated for credit. Three hours of seminar per week. Prerequisite: Graduate standing and consent of instructor. This seminar provides a topic in a Germanic language and gives students the opportunity to do independent research in a topic germane to Korean and other East Asian literary and cultural studies. Students in the Group in Asian Studies with research interests in Korean literature, intellectual history, and popular culture are particularly recommended to take this course. Students in Chinese and Japanese may take this course for the purpose of comparative examination with the student’s main area of research. The course is open to graduate students in all fields, but students should consult with the instructor to determine the viability of this course for the student’s overall program of studies. Topics will vary. (F,SP) Shin

207A. Major Issues in Korean Literature and Culture. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing and consent of instructor. This course surveys the major scholarship on modern Korean literature and cultural history. We will explore the ways in which scholarly inquiries have been raised and pursued and engage in discussions of the formation of the fields, analytical approaches, and possibilities for critical intervention. Emphasis will be on the late Choson development of literary criticism and an array of modern scholarly approaches to premodern literary genres and traditions. The course will proceed by closely examining the major scholarship on the following thematically arranged areas of inquiry: philological moments; genre theories on Sijo and Hansi; Imjin War, Manchu Invasion, “practical learning” and vernacular fiction; oral and reexamination; art collectors and “true view” school; and the making of the national history of literature. The course is open to graduate students in all fields. Topics will vary. (F,SP) Shin

207B. Major Issues in Korean Literature and Culture. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing and consent of instructor. This course surveys the major scholarship on modern Korean literature and cultural history. We will explore the ways in which scholarly inquiries have been raised and pursued and engage in discussions of the formation of the fields, analytical approaches, and possibilities for critical intervention. Emphasis will be on the late Choson development of literary criticism and an array of modern scholarly approaches to premodern literary genres and traditions. The course will proceed by closely examining the major scholarship on the following thematically arranged areas of inquiry: philological moments; genre theories on Sijo and Hansi; Imjin War, Manchu Invasion, “practical learning” and vernacular fiction; oral and reexamination; art collectors and “true view” school; and the making of the national history of literature. The course is open to graduate students in all fields. Topics will vary. (F,SP) Shin

298. Directed Study for Graduate Students. (1-8) Course may be arranged. Hours to be arranged. Credit and grade to be awarded on completion of sequence. Prerequisites: Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall. Directed independent study and preparation for senior honors thesis, which may not be given to senior as junior. (F,SP) Shin

H195A-H195B, Honors Course. (2-5-2) Hours to be arranged. Credit and grade to be awarded on completion of sequence. Prerequisites: Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall. Directed independent study and preparation for senior honors thesis, which may not be given to senior as junior. (F,SP) Shin

299. Thesis Preparation and Related Research. (1-8) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of thesis supervisor and (F,SP) Staff

601. Individual Study for Master’s Students. (1-8) Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of graduate advisor. Individual study for the comprehensive or language requirements in consultation with the graduate advisor. Units

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**B prefix=language course for business majors**

**C prefix=cross-listed course**

**H prefix=honors course**

**R prefix=course satisfies R&RC requirement**

**A prefix=course satisfies American Cultures requirement**

*Professor of the Graduate School*

*Recipient of Distinguished Teaching Award*
Tibetan

Lower Division Courses

1A-1B. Elementary Tibetan. (5-5) Five hours of lecture per week. Prerequisites: 1A is prerequisite to 1B. This course is an intensive introduction to both standard spoken Tibetan (Lhasa dialect) and written literary Tibetan. As such, it will serve the needs of students who intend to continue the study of modern Tibetan so as to function in a Tibetan-speaking environment, as well as the needs of students who will concentrate on classical Tibetan and it’s rich literature. (F,SP) Staff

10A-10B. Intermediate Tibetan. (3-3) Three hours of lecture per week. Prerequisites: 1B, 10A is prerequisite to 10B. This course, a continuation of 1A-1B (elementary Tibetan), is designed to further develop the student’s skills in modern standard Tibetan (Lhasa dialect). The emphasis is on communication skills in vernacular Tibetan, as well as grammar, reading, and writing. Students with a particular interest in reading classical literature, particularly Buddhist texts, are encouraged to enroll simultaneously in 110A-110B. (F,SP) Staff

98. Directed Group Study for Lower Division Students. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Small group instruction in topics not covered by regularly scheduled courses. (F,SP) Staff

99. Independent Study for Lower Division Students. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing, 3.5 GPA. Independent study in topics not covered by regularly scheduled courses. (F,SP) Staff

Upper Division Courses

100A-100B. Advanced Tibetan. (5-5) Five hours of lecture per week. Prerequisites: 1B, 10A is prerequisite to 10B. This course builds on the two previous years of Tibetan language training. Students will work toward advanced facility in reading, speaking, and writing standard Tibetan (Lhasa dialect), as well as in reading literary Tibetan, with particular emphasis placed on Buddhist literature. (F,SP) Staff

110A-110B. Intensive Readings in Tibetan. (4-4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Intermediate Tibetan (10A-10B) may be taken concurrently or independently. This course will reinforce grammatical skills acquired in first-year Tibetan (1A-1B) and build vocabulary, while introducing students to various genres of Classical Tibetan literature, including Buddhist scriptures, commentaries, doctrinal and polemical writings, poetry, biography and autobiography, letters, epics, and so on. Students will also gain competence in a variety of systems of Tibetan writing, including Umed, Drugtsa, and curvilinear. (F,SP) Staff

C114. Tibetan Buddhism. (4) Three hours of lecture per week. This course is a broad introduction to the history, development, and culture of the Buddhism of Tibet. We will begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist monasteries, rituals and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet. Also listed as South Asian C114 and Group in Buddhist Studies C114. (F,SP) Staff

98. Directed Group Study. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses. (F,SP) Staff

Graduate Courses

C224. Readings in Tibetan Buddhist Texts. (2,4) Three hours of seminar per week. This graduate seminar provides an introduction to a broad range of Tibetan Buddhist texts as well as to the methods and resources for their study. Readings for the course will be drawn from a variety of genres and historical periods, including: (1) chronicles and histories, (2) biographical literature, (3) doctrinal treatises, (4) canonical texts, (5) ritual manuals, (6) pilgrimage guides, and (7) liturgical texts. The seminar is designed to be of interest to graduate students interested in premodern Tibet from any perspective (literature, religion, art, history, philosophy, law, etc.). Students are required to do all of the readings in the original classical Tibetan. The course will also introduce students to “tools and methods” for the study of Tibetan Buddhist literature, including standard lexical and bibliographic references, digital resources, and secondary literature in modern languages. The content of the course will vary from semester to semester to account for the needs and interests of particular students. Also listed as Group in Buddhist Studies C224. (F,SP) Staff

298. Directed Study for Graduate Students. (1-8) Hours to be arranged. Special tutorial or seminar on selected topics not covered by available courses or seminars. (F,SP) Staff

299. Thesis Preparation and Related Research. (1-8) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of thesis supervisor and graduate adviser. (F,SP) Staff

Economics

(College of Letters and Science)

Department Office: 508-1 Evans Hall, (510) 642-3581

Faculty Chair: Gérard Roland, Ph.D.

Professors

Robert M. Anderson (Professor of Mathematics and Economics), Ph.D. Yale University. Microeconomic theory, economic development, physical geography.

Alvin Auerbach (The Robert D. Burch Professor of Economics and Law), Ph.D. Harvard University. Public finance, public policy.

Pranab K. Bardhan, Ph.D. Cambridge University. Development, international economics, political economy, institutional economics.

R. Clair Brown (Chair, Center for Work, Technology and Society of the Institute for Human and Employment), Ph.D. University of Maryland. Labor economics, management technology.

David Card (The Class of 1955 Professor of Economics), Ph.D. Princeton University. Labor economics.

Roy Chetty, Ph.D. Harvard University. Public economics, applied theory.

Jean de Vries (The Sidney Helman Ehren Professor of History), Ph.D. Yale University. Labor markets, economic growth, environment, and urbanization.


Aaron Edlin (The Richard Jennings Endowed Chair Professor of Economics; Professor of Law), Ph.D. Stanford University. Industrial organization and economics, public economics.

Barry Eichengreen (The George C. Pardee and Helen N. Pardee Professor of Economics and Political Science), Ph.D. Yale University. Economic history, international economics.

Joseph V. Farrell, Ph.D. Oxford University. Microeconomics, industrial organization.

Benjamin E. Hermalin (The Thomas and Alison Schneider Disistinguished Professor of Economics), Ph.D. Massachusetts Institute of Technology. Economics of organization, contract theory, corporate governance.

Charles L. Jones, Ph.D. Massachusetts Institute of Technology. Macroeconomics, economic growth.


Ronald D. Lee (The Edward G. and Nancy S. Jordan Family Professor of Economics; Professor of Demography, Center on Economics of Aging), Ph.D. Harvard University. Demography, economic history.

Enrico Moretti (The Michael E. Peseey and Donald Vial Chair in Labor Economics), Ph.D. University of California, Berkeley. Labor economics, applied econometrics.

John Morgan, Ph.D. Pennsylvania State University. Theory, industrial organization.

Maurice Obstfeld (The Class of 1958 Chair), Ph.D. Massachusetts Institute of Technology. International economics, macroeconomics, monetary economics.

James P. Powell, Ph.D. Stanford University. Economics, statistical modeling.

Yingyi Qian, Ph.D. Harvard University. Economics of organization and institution, economies of transition, China’s economic reform and development.

John D. Kasarda (The John H. C. and Mildred Shoemaker Professor of Public Policy), Ph.D. Harvard University. Public finance, public policy, urban economics.

Matthew Rob (The Edward G. and Nancy S. Jordan Professor of Economics), Ph.D. Massachusetts Institute of Technology. Psychology and economics, game theory.

Michael Reich (Research Director, Institute for Labor and Democracy), Ph.D. Harvard University. Political economics, labor.

Gerard Roland (Chair), Ph.D. Université Libre de Bruxelles (ULB). Transition, political, and institutional economics.


David Romer (The Herman Royer Professor of Political Economy), Ph.D. Massachusetts Institute of Technology. Macroeconomics, monetary theory.

Daniel Rubinfeld (The Robert L. Bridges Professor of Law; Professor of Economics), Ph.D. Massachusetts Institute of Technology. Public Economics, law and economics, antitrust policy.

Paul Romer, Ph.D. Massachusetts Institute of Technology. Economics, statistics.

Emmanuel Saez, Ph.D. Massachusetts Institute of Technology. Public economics.

Susan Scitovsky (Professor of Public Policy and Economics), Ph.D. University of California, Berkeley. Economic theory, industrial organization.

Christina Shannon (Professor of Economics and Mathematics), Ph.D. Stanford University. Economic theory.

Carl B. Shapiro (The Transamerica Professor of Business Strategy), Ph.D. Massachusetts Institute of Technology. Industrial organization.

Laura D. Tyson (The Class of 1959 Professor of Economics and Business Administration), Ph.D. Massachusetts Institute of Technology. Comparative economic systems, economic development and planning, international trade, econometrics.
Department Overview

Founded in 1903, our department is well-known for the excellence of its teaching and advising, with a strong reputation for producing outstanding Ph.D. graduates, as well as rigorous and innova-
tive economic research. In recent years, UC Berkeley economics Ph.D’s have been hired at many other leading institutions, including Harvard, MIT, Yale, the U.S. Federal Reserve, and the World Bank. Berkeley economics is consistently ranked among the world’s top research departments. Berkeley faculty have won four Nobel Prizes, four John Bates Clark Medals, and nineteen Alfred P. Sloan Research Fellowships (an average of one per year since 1995). Berkeley economics faculty and students have done groundbreaking work in economic theory, econometrics, macroeconomics, and applied fields of research, and have served as policymakers at the highest levels, both in the U.S. and abroad.

Admission to the Major

The major may be declared in the sophomore or junior year, and students are admitted in fall, spring, or summer session. A departmental application is required. Berkeley students are asked to file an application for admission, available at 543 Evans Hall during the first four weeks of summer, or fall. Transfer students must apply during their first semester at Berkeley. Although many factors are considered in determining admis-
sion to the major, the main criterion is academic performance as measured by GPA in prerequisite courses (see prerequisites listed below). Unfortunately, because of large enroll-
ments and limited resources available, it is not proved necessary to restrict the number of eco-
nomics majors. Prospective majors are en-
couraged to read the Economics Undergraduate Program Handbook, which gives up-to-date infor-
mation about economics courses and require-
ments. An online handbook is available at emlab.
berkeley.edu/econ/ugrad/hb1.shtml.

Undergraduate Major Program

Prerequisites: One year of calculus (Mathematics 1A-1B or Mathematics 16A-16B) and one semes-
ter of statistics: either Statistics 2, 20, 25, 101, 102, 131A or 134 (the statistics course must have a prerequisite), Economics 1 or 2, and Economics 100A or 100B or 101A. At least one semester of the calculus/statistics requirement must be completed at UC Berkeley.

Major Requirements:

Economics 100A and 100B, or 101A and 101B, or any other economics (either Eco-
nomics 140 or 141) and five upper division eco-
nomics courses. All courses must be taken on a letter-graded basis (please see Handbook).

Advising: All majors are encouraged to consult with faculty advisers and the undergraduate advisor when choosing their programs. Students plann-
ing to do graduate work in economics are urged to take more quantitative courses in economics.

Departmental Honors

Students interested in graduating with honors in economics should consult with a faculty adviser no later than their first semester of the senior year. The department recommends a student for grad-
uation with honors based on: (a) evidence of supe-
rior performance provided by a thesis written in the senior year and (b) the student’s course grade record overall and in the major. The minimum major GPA requirement is 3.5 in upper division economics courses and 3.3 GPA overall. The senior thesis may be an extension of a seminar paper presented or a continued guidance of a faculty member through enrollment in H195A/B.

Graduate Program

The graduate program trains doctoral students interested in pursuing advanced study and con-
ducting original research in economics. Detailed information concerning admission, financial aid, and degree requirements may be found on the Department of Economics website at emlab.
berkeley.edu/econ/grad/grad.shtml.

New admissions to the graduate program are restricted to students pursuing the Ph.D. degree. There is no external, terminal program for the M.A. degree; only students enrolled at the School of Law or in other doctoral programs at Berkeley may enroll for an M.A. degree in economics if approval is given by both departments. A strong mathematics background is a must. Other requirements for the internal M.A. degree are as follows: (1) coursework in economic theory equ-
ivalent to Economics 101A-101B, 200A-200B, or 201A, 202A; (2) completion of 24 units of approved coursework, of which 12 units must be in graduate economics courses numbered 201 or greater; and (3) satisfactory performance in two written field examinations. Interested students should see the graduate adviser for further details and applications.

Law and Economics

The School of Law and the Department of Eco-
nomics sponsor a concurrent program which per-
rts students to study for the degree of Juris Doc-
lor while preparing for the Ph.D. in economics. In four years, a well-prepared student can receive the law degree and also complete the pre-thesis requirements for the Ph.D. Further information may be obtained from the graduate adviser of the Department of Economics.

Lower Division Courses

1. Introduction to Economics. (4) Students will receive 2 units of credit for 1 after taking Economics 3 or Environmental Economics and Policy 1; no credit after taking Economics 2. Two hours of lecture and two hours of discussion per week. A survey of eco-
nomics designed to give an overview of the field. (F,SP) Staff

2. Introduction to Economics—Lecture Format. (4) Students will receive no credit for 2 after taking 1; 2 units after taking 3 or 4. One hour of lecture and one hour of discussion per week. The course provides a survey of economics principles and methods. It covers both microeconomics, the study of consumer choice, firm behavior, and market interaction, and macroe-
cconomics, the study of economic growth, unemploy-
ment, and inflation. Special emphasis is placed on the application of economics to contemporary economic problems and policies. Economics 2 differs from Economics 1 in that it has an additional hour of lecture per week and can thus cover topics in greater depth. It is particularly appropriate for intended eco-
nomics majors. (SP) Staff

C3. Introduction to Environmental Economics and Policy. (4) Students will receive two units of credit for C3 after taking Economics 1. Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 32 or 32N, formerly 3. Introduction to microe-
nomics with emphasis on resource, agricultural, and environmental issues. Also listed as Environ-
mental Economics and Policy C1. (F,SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-3 to be graded on a passed/not passed basis. Sections 4-5 to be graded on a letter-
grade basis. The Freshman Seminar Program has been designed to provide new students with the oppor-
tunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman semi-
inars are offered in all campus departments. Topics vary from department to department and semester to semester. Enrollment limited to 15 freshman.

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of semi-
ner per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-
grade basis. Prerequisites: By instructor's discretion. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sopho-
more. (F,SP)

98. Direct Group Study. (1,4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Written proposal must be approved by Departmental Group Study advisers for the group study of selected topics, which will vary from year to year. Topics may be initiated by students. Staff

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

B prefix=language course for business majors economic requirements
R prefix=course satisfies R & C requirement
H prefix=honors course
Upper Division Courses

100A. Economic Analysis—Micro. (4) Students will receive no credit for 100A after taking 101A or Undergraduate Business Administration 101A. A deficient grade in Undergraduate Business Administration 101A may be removed by taking 100A. Three hours of lecture and two hours of discussion per week. Prerequisites: 1 or 2 or C3, or Environmental Economics and Policy 1, and Mathematics 1A or 16A. Resource allocation and price determination. (F,SP) Staff

100B. Economic Analysis—Macro. (4) Students will receive no credit for 100B after taking 101B or Undergraduate Business Administration 101B. A deficient grade in Undergraduate Business Administration 101B may be removed by taking 100B. Three hours of lecture and two hours of discussion per week. Prerequisites: 1 or 2 or C3, or Environmental Economics and Policy 1, and Mathematics 1A or 16A. A study of the factors which determine national income, employment, and price levels, with attention to the effects of monetary and fiscal policy. (F,SP) Staff

101A. Economic Theory—Micro. (4) Students will not receive credit for 101A after taking 100A or Undergraduate Business Administration 101A or any other course in advanced microeconomics. A deficient grade in Undergraduate Business Administration 101A may be removed by taking 101A. Three hours of lecture and two hours of discussion per week. Prerequisites: 100A or 101A, Mathematics 53 or equivalent or consent of instructor. Theory of resource allocation and price determination with an emphasis on microeconomic principles. (F,SP) Staff

101B. Economic Theory—Macro. (4) Students will not receive credit for 101B after taking 101A or Undergraduate Business Administration 101B. A deficient grade in Undergraduate Business Administration 101B may be removed by taking 101B. Three hours of lecture and two hours of discussion per week. Prerequisites: 101A or consent of instructor. A study of theories of the determination of national income, employment, and price levels, with attention to the effects of monetary and fiscal policy. (F,SP) Staff

C102. Natural Resource Economics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100A or 100B, or Environmental Economics and Policy 100. Introduction to the economics of natural resources. Land and the concept of economic rent. Modern models of exploitation of nonrenewable resources and optimal use of renewable resources. Application to energy, forests, fisheries, water, and climate change. Resources, growth, and sustainability. Also listed as Environmental Economics and Policy C102. (F) Staff

C103. Introduction to Mathematical Economics. (3) Three hours of lecture per week. Prerequisites: Math 53 and 54. Formerly 103. Selected topics illustrating the application of mathematics to economic theory. This course is intended for upper-division students majoring in mathematics, statistics, the physical sciences, and engineering, and for economics majors with adequate mathematical preparation. No economic background is required. Also listed as Mathematics C103. Staff

104. Advanced Microeconomic Theory. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 101A or consent of instructor. This course covers topics in advanced microeconomic theory, with special emphasis on game-theoretic models and the theory of choice under uncertainty. Specific applications will vary from year to year but will generally include topics from information economics and models of strategic interaction. Staff

105. History of Economic Thought. (3) Three hours of lecture per week. Prerequisites: 100A-100B or 101A-101B. A survey of the theories of major economists from Adam Smith to Keynes. (F,SP) Staff

C110. Game Theory in the Social Sciences. (4) Students will receive no credit for C110 after taking Economics 104. Three hours of lecture and one hour of discussion per week. Formerly 135. A non-technical introduction to game theory. Basic principle, and models of interaction among players, with a strong emphasis on applications to political science, economics, and other social sciences. Also listed as Political Science C135. Staff

113. American Economic History. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 1 or 2 A survey of the trends in the American economy, focusing on the changing economic growth and on the changing distribution of the gains and losses associated with growth. (F,SP) Staff

115. The World Economy in the 20th Century. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 101A. This course will present the history of the world economy with particular reference to world-wide trading relationships. This course is equivalent to History 160; students will not receive credit for both courses. Staff

119. Psychology and Economics. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A or 101A. This course presents psychological and experimental economics research demonstrating departures from perfect rationality, self-interest, and other classical assumptions of economic behavior and explores ways that departures can be mathematically modeled and incorporated into mainstream positive and normative economics. The course will cover a variety of topics, including experiments designed to test specific formal assumptions that capture the findings in a way that can be incorporated into economics. The implications of these new assumptions for theoretical and empirical economics will be explored. (F,SP) Staff

121. Industrial Organization and Public Policy. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A or 101A. The organization and structure of production in the U.S. economy. Determination of market structure, business behavior, and economic performance. Implications for antitrust policy. Staff

122. Industrial Organization Seminar. (4) Three hours of seminar per week. Prerequisites: 121 and/or consent of instructor. Seminar on problems in the field of industrial organization. Seminar paper is required. Staff

123. Government Regulation of Industry. (3) Three hours of lecture per week. Prerequisites: 121. Problems of public policy in the field of industrial organization. Analysis of regulatory consequences with particular attention to economic performance. Staff

124. Special Topics in Industrial Organization. (3) Three hours of lecture per week. Analysis of market structure, conduct and performance in selected industries. See course announcement for current topics. Staff


126. Industrial Organization: Theory and Evidence. (3) Students will receive no credit for 126 after taking 121. Three hours of lecture per week. Prerequisites: 101A or consent of instructor. Structure, conduct, and performance in U.S. monopoly, oligopoly, and competition. Emphasis on use of microeconomic theory and game theory to explain workings of markets, with use of mathematics as appropriate. Covers Cournot, Bertrand, and Cournot-Arrow models, but with more use of economic theory. (F,SP) Staff

131. Public Economics. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A-100B or 101A-101B or consent of instructor. This course will cover the role of the government in the economy from a theoretical and empirical perspective. The aim of the course is to provide an understanding of the reasons for government intervention in the economy, analyzing the merits of possible government policies, and the response of economic agents to the government’s actions. The course covers the analysis of tax policy, social insurance programs, public goods, environmental protection, and the different levels of government. Special emphasis is set on current government policy issues, such as social security reform, income tax reform, and budget deficits. (F,SP) Staff

136. Financial Economics. (4) Students will receive no credit for 136 after taking Undergraduate Business Administration 103. Students intending to major in Business should not take 136. Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A or 101A and consent of instructor. Analysis of financial assets and institutions. The course covers modern asset valuation theory and the role of financial intermediaries, and their regulation, in the financial system. (F,SP) Staff

137. Aggregate Economics Seminar. (4) Three hours of seminar per week. Prerequisites: 136 and consent of instructor. Enrollment will be limited. A seminar paper is required. Staff

138. Financial and Behavioral Economics. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A-100B or 101A-101B or equivalent and Statistics 20, 21, 25, or 131A or equivalent. Introduction to problems of observation, estimation, and hypothesis testing in economics. This course covers the linear regression model and its application to empirical problems in economics. (F,SP) Staff

141. Econometric Analysis. (4) Students will not receive credit for 141 after taking 141. Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 100A-100B or 101A-101B or equivalent and Statistics 20, 21, 25, or 131A, or equivalent. Statistical methods and relevant economic models. Statistical models, estimation, inference, and hypothesis testing. Regression models and their application to empirical problems. (F,SP) Staff

142. Applied Econometrics and Public Policy. (4) Three hours of lecture and zero to one hour of discussion/laboratory per week. Prerequisites: 140 or 141 or consent of instructor. This course focuses on the statistical application of econometric methods to empirical problems in economics and public policy analysis. It provides background on issues that arise when analyzing non-experimental social science data and the role of assumptions about the causal effect of policy interventions. By the end of the course, students will have an understanding of the types of research designs that can lead to convincing analysis and be comfortable working with large scale data sets. Also listed as Public Policy C142 and Political Science C131A. Staff

151. Labor Economics. (3) Three hours of lecture per week. Prerequisites: 100A-100B or 101A-101B or consent of instructor. This course will analyze the forces that shape labor markets, institutions, and performance in the U.S., Japan, and at
least one European country (usually Germany). Institutions examined include trade unions, legal regulations, and social conventions. (F,SP) Staff

152. Wage Theory and Policy. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A-100B or 101A-101B or equivalents. This course focuses on theoretical and empirical analysis of wage and employment determination in the labor market. In addition, the role of public policy in affecting wage and employment outcomes in the U.S. labor market is examined. Topics include labor supply, labor demand, minimum wages, the economics of education and training, discrimination and the impact of antidiscrimination policies and changes in wage inequality over time, immigration, unions, unemployment, and poverty. (F,SP) Staff

153. Labor Economics Seminar. (4) Three hours of seminar per week. Prerequisites: 151 or 152 and consent of instructor. Topics in labor economics. Seminar paper required. Staff

154. Economics of Discrimination. (3) Three hours of seminar per week. Prerequisites: 100A-100B or 101A-101B or equivalents; 140 or 141. Starting from Becker’s classic book on the economics of discrimination, this course explores issues in race, gender, and gender discrimination associated with race, gender, or nation of birth, focusing particularly on credit and housing markets, education, and health care. The course examines the ways in which economic metrics is addressed to questions of discrimination. (F,SP) Staff

157. Health Economics. (3) Three hours of lecture per week. Prerequisites: 1 or 2. An economic analysis of policies and institutions in the U.S. health care sector. Topics covered include the supply and demand for health services, conceptual and policy issues relating to the provision of health insurance, and economic analysis of efficient regulatory policies toward the health care sector. (F,SP) Staff

161. Economics of Transition: Eastern Europe. (3) Three hours of lecture per week. Prerequisites: 1 or 2. Economic behavior under socialism; socialism vs. capitalism. Transition challenges. Stylized facts of transition. Political economy of reform strategies. Liberalization in the former Soviet Union and its consequences. The Washington consensus, transition, and the institutions of capitalism. (F,SP) Staff

162. The Chinese Economy. (3) Three hours of lecture per week. Prerequisites: 100A-100B or 101A-101B. The Chinese economy, its institutions, reform and transition to the market, and development. (F,SP) Staff

163. Special Topics in Economic Systems. (1.5) One and one-half hours of lecture per week. Prerequisites: 1 or 2. Recommended: 161 or 162. As announced in the department course descriptions. Staff

C171. Economic Development. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100A or 101A or Environmental Economics and Policy 100. Problems of underdevelopment and poverty, policy issues, and development strategy. Also listed as Environmental Economics and Policy C151. (F) Staff

172. Case Studies in Economic Development. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 1. A detailed study of the problems of development in a selected geographic area: Latin America, Africa, Asia or Europe. (F,SP) Staff

173. Economic Development Seminar. (4) Three hours of seminar per week. Prerequisites: 171 or 172 and consent of instructor. A seminar paper will be required. (F,SP) Staff

C175. Economic Demography. (3) Three hours of lecture per week. Prerequisites: 1 or 2. Formerly 175. A general introduction to economic demography, addressing the following kinds of questions: What are the economic consequences of immigration to the U.S.? Will industrial nations be able to afford the health and pension costs of “aging” populations? How has the size of the baby boom affected its economic well being? Has fertility been high in third world countries? In industrial countries, why is marriage postpon ed, divorced, or extinct? What makes fertility rising? What are the economic and environmental consequences of rapid population growth? Also listed as Demography C175. (SP) Lee

181. International Trade. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100A-100B or 101A-101B. The theory of international trade and its applications to tariff protection. (F,SP) Staff

C181. International Trade. (4) Students will receive no credit for C181 after taking Undergraduate Business Administration 181. Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A-100B or 101A-101B. The theory of international trade and its applications to tariff protection. This course is equivalent to UGBA 118; students will not receive credit for both courses. Also listed as Environmental Economics and Policy C181. (F,SP) Staff

182. International Monetary Economics. (4) Three hours of lecture and zero to one hours of discussion per week. Prerequisites: 100A-100B or 101A-101B. This course is an examination of the role of money and prices in open economies, the internationalization of financial markets and its implications, international macroeconomic interdependence, and the determination of the exchange rate. (F,SP) Staff

183. International Economic Seminar. (4) Three hours of seminar per week. Prerequisites: 181 and 182 and consent of instructor. A seminar paper is required. Staff

190. Seminar on Topics in Economics. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: consent of instructor. A seminar focusing on current research in the field of the instructor. The topic and prerequisites will be announced at the beginning of each semester and will be limited. A seminar paper is required. Staff

H195A. Senior Honors Thesis. (1-3) Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Senior honors candidates only (students with a GPA of 3.5 or better or permission of instructor.). Preparation for writing a thesis, finding and organizing a topic, gathering data and getting started. H195A is not prerequisite to H195B. (F,SP) Staff

H195B. Senior Honors Thesis. (1-3) Hours to be arranged. Prerequisites: Senior honor candidates only (students with major GPA of 3.50 or better or permission of undergraduate adviser). Writing a thesis under the supervision of a faculty member. Application and details through the departmental undergraduate office. H195A is not prerequisite to H195B. (F,SP) Staff

196. Special Topics in Economics. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: Upper division standing or consent of instructor. Special topics in economics. This course is not open to graduate students. Topic and prerequisites will be announced at the beginning of each semester. (F,SP) Staff

197. Field Studies. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing. Written proposal must be approved by Department Chair. Supervised field studies in economics. Projects may be initiated by the students. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Written proposal must be approved by Department Chair. Seminars for the group study of selected topics, which will vary from year to year. Topics may be initiated by students. Staff

199. Supervised Independent Study and Research. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing. Written proposal must be approved by Department Chair. Enrollment is restricted. (F,SP) Staff

Graduate Courses

201A. Economic Theory. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 101A-101B, 204, Mathematics 53 and 54; or equivalent. Basic preparation for the Ph.D. program including agency theory and mechanism design, general equilibrium theory. (F,SP) Staff

201B. Economic Theory. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 101A-101B, 204, Mathematics 53 and 54; or equivalent. Basic preparation for the Ph.D. program including agency theory and mechanism design, general equilibrium theory. (F,SP) Staff

202A-202B. Macroeconomic Theory. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 181 and 182 and consent of instructor. The course provides a rigorous abstract treatment of the elements of real analysis and linear algebra central to current research in economics. The course develops in the students the ability to read mathematical proofs and to compose simple proofs on their own. (F,SP) Staff

206. Mechanism Design and Agency Theory. (3) Two hours of lecture per week. Prerequisites: 201B and 208A or consent of instructor. Formerly 208B. This course will study the optimal design of mechanisms in the presence of incomplete information and imperfect observability. The course begins with the “classic” principal-agent problem and will then develop its applications to the “implicit contracts” theory of agency and to the choice of government policies for regulated industries. The course will treat the design of auctions, regulation with costly or imperfect monitoring, mechanism design with limited contracts. Staff

207A. Mathematical Economics. (3) Two hours of lecture per week. Twelve weeks per hour including class time and preparation. Prerequisites: Math 104 and 110 and Statistics 101. Mathematical analysis of economic theory. The problems treated involve a wide range of mathematical techniques and of economic theory as possible applications of preference, utility, demand, personal probability, games and general equilibrium. Also listed as IDS 213A-213B and Math 213A-213B. Staff

208. Microeconomic Theory Seminar. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: 207A. Staff

209A. Theory and Application of Non-Cooperative Games. (3) Two hours of lecture per week. Prerequisites: Consent of instructor. This course will study both pure game theory and its application to such problems as oligopoly pricing, and optimal auctions. The focus will be on game theory as a modelling process as opposed to a body of known results. Staff
209B. Theory and Application of Non-Cooperative Games: II. (3) Two hours of lecture per week. Prerequisites: 209A or consent of instructor. The course will cover topics not covered in 209A; will provide a more thorough treatment of topics covered in 209A; will cover a selection of advanced topics. Staff

210A. Introduction to Economic History. (3) Two hours of lecture per week. Survey of some central themes in world economic history. Required of all Ph.D. candidates. Staff

210B. Topics in European Economic History. (3) Two hours of lecture per week. Prerequisites: 210A. A survey of some central themes in European economic history. Staff

210C. Topics in American Economic History. (3) Two hours of lecture per week. Prerequisites: 210A. A survey of some central themes in American economic history.

211. Seminar in Economic History. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff


218. Seminar in Psychology and Economics. (3) Two hours of seminar per week. A graduate seminar in the field of behavioral economics. (F.SP) Della Vigna, Koszegi, Rabin

219A. Foundations of Psychology and Economics. (3) Two hours of lecture per week. Prerequisites: 201A-201B or consent of instructor. This course presents psychological and experimental economics research demonstrating departures from perfect rationality, self-interest, and other classical assumptions of economics and explores ways in which these departures can be mathematically modeled and incorporated into mainstream positive and normative economics. The course will focus on the behavioral evidence itself, especially on specific formal assumptions that capture the findings in a way that can be used by economists. Economic applications will be used for illustrative purposes. The course will emphasize formal theory. (F.SP) Staff

219B. Applications of Psychology and Economics. (3) Two hours of lecture per week. Prerequisites: 219A, 240A-240B or consent of instructor. This course will build upon the material presented in 219A. It will expand on the psychological and experimental economic research presented there, but will emphasize a range of economic applications and especially empirical research. (F.SP) Staff

219C. Topics in Psychology and Economics. (3) Two hours of lecture per week. Prerequisites: 219A-219B or consent of instructor. This course will cover special topics that extend the material from 219A and 219B, with an emphasis on further empirical applications. (F.SP) Staff

219D. Experimental Economics. (3) Two hours of lecture per week. Prerequisites: 219A or consent of instructor. This course will introduce students to the methods and findings of experimental economics. (F.SP) Staff

220A. Industrial Organization. (3) Two hours of lecture per week. Prerequisites: 219A. Market structure, conduct and performance in the regulated sector of the American economy. Public policies related to the promotion or restriction of competition. Staff

220B. Industrial Organization. (3) Two hours of lecture per week. Prerequisites: 220A. Continuation of 220A. The characteristics of regulated industries and the consequences of regulation for economic performance. Staff

220C. Special Topics in Industrial Organization. (3) Two hours of lecture per week. See course announcement for current topics. Staff

221. Seminar in Industrial Organization: Regulation and Public Enterprise. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff

222. Economics of Innovation. (3) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Study of innovation and intellectual property, including the industrial organization and performance of high-technology industries and firms; the use of economic, patent, and other bibliometric data for the analysis of technical change; legal and economic aspects of intellectual property rights; science and technology policy; and the contributions of innovation and diffusion to economic growth. Methods of analysis are both theoretical and empirical, econometric and case study. Also listed as Ph.D. in Business Administration C270I. (F.SP) Staff

224. Economics of Institutions. (3) Two hours of lecture per week. This course develops the proposition that institutions have pervasive ramifications for understanding economic organization. A comparative institutional approach is employed whereby the transactional logic that institutions have pervasive ramifications for under- standing economic organization. A comparative institutional approach is employed whereby the transaction is made the basic unit of analysis and alternative modes of organization are assessed with respect to their comparative contracting properties. Staff

225. Workshop in Institutional Analysis. (2) Students will receive no credit for C225 after taking 225. Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. This seminar features current research of faculty, from UC Berkeley and elsewhere, and of advanced doctoral students who are investigating the efficacy of economic and non-economic forms of organization. An interdisciplinary perspective—combining aspects of law, economics, and policy—is maintained. Markets, hierarchies, and networks are considered. The course will focus on the behavioral evidence itself, especially on specific formal assumptions that capture the findings in a way that can be used by economists. Economic applications will be used for illustrative purposes. The course will emphasize formal theory. (F.SP) Staff

226. Seminar in Economic History. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff

230A. Public Economics. (3) Two hours of lecture per week. The economic and policy analysis of government expenditures, taxes, and intergovernmental fiscal relations. 230A is not a prerequisite for 230B. Staff

230B. Public Economics. (3) Two hours of lecture per week. Prerequisites: 230A or equivalent. Topics include: economic analysis of government services and programs, including the efficiency of government programs and the role of political economy in determining program outcomes. The Incentives and Incentives for firms, families, individuals, and state and local government. This course considers the incentive effects of government programs and how they can be used to address social problems. Staff

230C. Public Sector Microeconomics. (3) Two hours of lecture per week. The economic and policy analysis of government expenditures, taxes, and intergovernmental fiscal relations. Staff

231. Seminar in Public Sector Economics. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff

234A. Macroeconomic Finance. (3) Three hours of lecture per week. Formerly 236D. Introduction to macroeconomic finance. Course covers static portfolio choice, capital asset pricing model (CAPM), consumption based models, dynamic equilibrium asset pricing models, and other topics in household finance. Strong emphasis on household finance and risk-sharing. Course is both theoretical and empirical. (F.SP) Staff

234C. Financial Decision-Making in Firms. (3) Three hours of lecture per week. Prerequisites: 234A or equivalent. This course provides a theoretical and empirical treatment of the core topics in corporate finance including internal corporate investment; external corporate investment (mergers and acquisitions); capital structure and financial contracting; bankruptcy; corporate governance. (F.SP) Staff

235. Financial Economics Seminar. (3) Course may be repeated for credit. Two hours of seminar per week. This course presents speakers who work on the boundary of economics and finance, including asset pricing, behavioral finance, and corporate finance. (F.SP) Staff

236A-236B. Aggregate Economics. (3,3) Two hours of lecture per week. Prerequisites: For 236A: 210A-201B and 202A-202B. For 236B: 236A. Macroeconomics: models; theory and empirical economics; rational expectations models; finance and economic issues of intellectual property rights; finance theory integrated with macro. Staff

236C. Capital and Economic Growth. (3) Two hours of lecture per week. Formerly 202C. An examination of the roles of time and capital in the processes of individual choice and the theories of production and distribution. The course will discuss the nature of capital and the role of capital accumulation in modern theories of economic growth and planning. (F.SP) Staff

237. Seminar in Advanced Macroeconomics and Money. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff

240A. Econometrics. (5) Four hours of lecture and two hours of discussion per week. Prerequisites: 100A or 101A or equivalent; 100B or 101B or equivalent. Mathematics 33 and 54 or equivalent; Statistics 131A or equivalent. Formerly 240. Basic preparation for the Ph.D. program including probability and statistical theory and the classical linear regression model. Staff

240B. Econometrics. (3) Three hours of lecture and two hours of discussion per week. Prerequisites: 240A or equivalent. Basic preparation for the Ph.D. program including generalized least squares; instrumental variables estimation; generalized method of moments; time-series analysis; and nonlinear models. (F.SP) Staff

241A. Econometrics. (4) Three hours of lecture per week. Prerequisites: Statistics 202A-202B or equivalent and a course in linear algebra. Recommended: Math 112A. Emphasis on the econometric analysis of economic time-series models and others with strong mathematical backgrounds. Linear and nonlinear statistical models and their applications in economics. Special problems in analysis of data from non-controlled experiments. (SP) Staff

241B. Econometrics. (4) Three hours of lecture per week. Prerequisites: 241A. Simultaneous equations and time-series models. Staff

242. Seminar in Econometrics. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: 240A-240B. Staff

243. Special Topics in Econometrics. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: 241A-241B. See department course description each semester. Staff
244. Applied Econometrics. (3) Three hours of lecture per week. Prerequisites: 240A-240B. Methods of applied econometrics, with emphasis on alternative modeling techniques and problems met in practice. Intended for doctoral students conducting empirical research. Staff

250A-250B. Labor Economics. (3,3) Two hours of lecture per week. Prerequisites: 250A is prerequisite to 250B. Consent of instructor. Analysis of labor market behavior. Staff

250C. Labor Economics. (3) Two hours of lecture per week. Prerequisites: 250B. Analysis of labor market behavior. Staff

251. Seminar in Labor Economics. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Seminar for students at doctoral dissertation level. Staff

260A-260B. Comparative Economics. (3,3) Two hours of lecture per week. Prerequisites: 260A is prerequisite to 260B. New issues raised by transition for economics. Political economy of reform: speed, sequencing, reform design, political economy of privatization. Allocative changes: speed of sectoral reallocation, price liberalization, output fall and macroeconomic dynamics, law enforcement, dynamics of institutional change. (F,SP) Rolando

261. Seminar in Comparative Economics. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff

270A-270B. Development Economics. (3,3) Two hours of lecture per week. Problems of underdevelopment and poverty, policy issues and development strategies. Staff

C270A. Microeconomics of Development. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Theoretical and empirical analyses of poverty and inequality, household and community behavior, and contract and institutions in the context of development. Also listed as AC 240A and ReSource Economics C251. (F) Sadoulet

270C. Development Economics. (3) Two hours of lecture per week. Basic macro-policy planning with investment project analysis. Staff

270D. Special Topics in Development. (3) Two hours of lecture per week. Prerequisites: See course announcement. See course announcement for current topics and prerequisites. Staff

271. Seminar in Economic Development and Planning. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Staff

C275A. Economic Demography. (3) Two hours of lecture per week. Economic consequences of demographic change in developing and developed countries including capital formation, labor markets, and intergenerational transfers. Economic determinants of fertility, mortality and migration. Also listed as Demography C275A. (F,SP) Lee

275B. Selected Topics in Economic Demography. (3) Two hours of lecture per week. A review of recent literature in selected areas of economic demography; content will range from year to year.

275B. Aging: Economic and Demographic Aspects. (2) Two hours of lecture per week for seven and one-half weeks. Course considers demographic and economic aspects of population aging. Also listed as Demography C236. (SP) Lee

280A. International Economics. (3) Two hours of lecture per week. The world economy as a general equilibrium system. The theory of international economics, trade policy. Staff

280B. International Economics. (3) Two hours of lecture per week. Prerequisites: 280A is not prerequisite to 280B. This course develops basic theoretical models for studying issues in open-economy macroeconomics. The current account and the trade balance, international capital market integration, developing country debt problems, the real exchange rate, fiscal policy in the open economy, and international policy coordination. Staff

280C. International Economics. (3) Two hours of lecture per week. Prerequisites: 280B. This course is an empirical treatment of open-economy macroeconomics and finance. Topics include trade elasticities, the determination of the trade balance and income under fixed and floating exchange rates, purchasing power parity, devaluation in small open economies, quantifying the degree of international capital mobility, implications for the effectiveness of monetary and fiscal policy, international interdependence and coordination, models of exchange rate determination. (SP) Staff

281. Seminar in International Trade and Finance. (3) Course may be repeated for credit. Two hours of seminar per week. Staff

291. Departmental Seminar. (1) One and one-half hours of seminar every other week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 201B, 202B. A general interest seminar featuring speakers and topics of broad interest whose work will be important for all areas of economics. (F,SP) Staff

295. Survey of Research in Economics. (1) Two hours of seminar per week. Must be taken on a passed/not passed basis. New research directions by departmental faculty of new research directions in different subfields of economics. Staff

296. Special Topics in Economics. (3) Two hours of lecture per week. Prerequisites: Consent of instructor. Topics of different sections to be announced annually. Staff

298. Directed Group Study for Graduates. (1-4) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Staff

Professional Courses

301. GSI Practicum. (6) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Staff

Associate Professors


Mark Wilson, Ph.D. University of Chicago. Psychometrics, educational statistics.

Frank Worrell, Ph.D. University of California, Berkeley. African American studies, African American education, urban schooling.

Paul A. Ammon (Emeritus), Ph.D. City University of New York. Urban education.

Guy Benveniste (Emeritus), Ph.D. City University of New York. Urban education.

Joseph C. Campione (Emeritus), Ph.D. City University of New York. Urban education.

John G. Hursel (Emeritus), Ph.D. City University of New York. Urban education.

James L. Jarrett (Emeritus), Ph.D. City University of New York. Urban education.

Lenard C. Letlow (Emeritus), Ph.D. City University of New York. Urban education.

Jean Lave (Emeritus), Ph.D. City University of New York. Urban education.

Lawrence W. Lowery (Emeritus), Ph.D. City University of New York. Urban education.

Ronald J. Reed (Emeritus), Ph.D. City University of New York. Urban education.

William D. Roehrig (Emeritus), Ph.D. City University of New York. Urban education.

Robert B. Ruddell (Emeritus), Ph.D. City University of New York. Urban education.

Lloyd F. Scott (Emeritus), Ph.D. City University of New York. Urban education.

David S. Stern (Emeritus), Ph.D. City University of New York. Urban education.

Lawrence C. Stone (Emeritus), Ph.D. City University of New York. Urban education.

Alan B. Wilson (Emeritus), Ph.D. City University of New York. Urban education.


C. Smith (Emeritus), Ph.D. City University of New York. Urban education.

Geraldine Joncich Clifford (Emerita), Ph.D. City University of New York. Urban education.

Joseph C. Campione (Emeritus), Ph.D. City University of New York. Urban education.


Mark Wilson, Ph.D. University of Chicago. Psychometrics, educational statistics.

Frank Worrell, Ph.D. University of California, Berkeley. African American studies, African American education, urban schooling.

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Lawrence C. Stone (Emeritus), Ph.D. City University of New York. Urban education.

Alan B. Wilson (Emeritus), Ph.D. City University of New York. Urban education.
Graduate Program Overview

The Graduate School of Education is committed to high-quality scholarship and professionalism in order to prepare future leaders of education practice, policy, and research. Faculty research and teaching are grounded equally in theory and practice.

The Graduate School of Education offers Doctor of Philosophy (Ph.D.), Doctor of Education (Ed.D.), Master’s of Arts (M.A.), and credential degree programs. The Ph.D. degree is designed for students interested in pursuing scholarly research and academic careers. The Ed.D. is a professional degree designed for individuals seeking advanced professional preparation to become school administrators or other educational leaders. The M.A. degree satisfies the interest of students who want to carve out a career in education, either as an education researcher or as an education practitioner. Credential programs, which all contain an M.A. component, are designed for students who plan to work in schools as teachers, principals, district and county administrators, and school psychologists.

Areas of Study

Degree and credential programs are grouped under three main areas of study: (1) Cognition and Development; (2) Language and Literacy, Society and Culture; and (3) Policy, Organization, Measurement and Evaluation.

The Cognition and Development (CD) area of study focuses on the interplay among cognitive, social, and developmental processes in diverse areas of human knowledge and experience. The faculty concentrate on learning in mathematics, science, and engineering, as well as broader cognitive, social, and moral development. Faculty and student research typically occurs in field settings (e.g. classrooms), providing fertile sites for conceptual, as well as the development of educational practices. CD supports both professional and academic programs, each enriching the other in courses and research opportunities.

Faculty and students in Language and Literacy, Society and Culture (LSC) study, design, and participate in working to shape society, as well as broader social, cultural, and political issues, in order to improve the education of all children.

Ph.D. programs in Policy, Organization, Measurement and Evaluation (POME) emphasize: (1) the study of schools as institutions and school systems; (2) the formulation and effects of educational policy; and (3) methods of research, measurement, and evaluation in education. POME students enter as a cohort, take courses together, join faculty research groups, and cultivate their own areas of interest and expertise in education. POME faculty have strengths in both professional and academic programs.

Programs in Policy, Organization, Measurement, and Evaluation (POME) include:

- a focus on the institutions of schooling analyzed from various disciplinary perspectives, including sociology, economics, and history;
- experience in linking research, policy, and practice at the local, state, and national levels;
- a breadth and depth of methodological, measurement, and evaluation expertise to conduct policy-oriented research and to inform sound institutional leadership and decision making;
- the analysis of and practice related to leadership in schools at both school and district levels.

The Leadership for Educational Equity Program (LEEP) is a School-wide Ed.D program that offers a three-year course of study with evening, weekend, and summer schedule to accommodate participation in professional activities. LEEP uses a cohort model that builds professional relationships among peers. Students participate in school- and district-based residencies to undertake problem-based research. Students strive to understand how to create effective, equitable, and democratic schools that value cultural diversity.

The Graduate Group in Science and Mathematics Education (SESEMA) is an interdisciplinary academic unit dedicated to advancing the major and minor understandings and understandings and teaching in science and mathematics. SESEMA's faculty include scientists, mathematicians, engineers, computer scientists, and education professors. Students choose mentors, maintain at least master's level competency in their mathematical or scientific disciplines.

Undergraduate Minor in Education

The School of Education offers a minor in educa- tion for undergraduates currently enrolled at Berke- ley. The program offers students the opportunity to examine systematically an institution that occupies a unique position in society and profoundly influences virtually everyone. This program is designed to enable students to develop a personal understanding of the relationship of education to the development of societies and individuals. Its focus is on the potential as well as the reality of diverse forms of education. The minor offers an opportunity for intellectual inquiry to broaden and complement students' work in their major fields of study. In the process, students will encounter the wide array of professional possibilities in the field of education, enabling those considering a career in the field to make an informed choice.

Lower Division Courses

C1. Introduction to Cognitive Science. (3) Three hours of lecture and two hours of laboratory per week. Formerly 1. This course introduces the interdisciplinary study of the mind. Students will survey research from artificial intelligence, psychology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, perception, memory, reasoning, and consciousness. Sections will demonstrate some of the major methodologies. Also listed as Cognitive Science C1. (F,SP)

24. Berkeley Freshman Seminars. (2) Course may be repeated for credit as topic varies. Formerly 40AC taken before fall 2004. Racial and ethnic minorities in American schools and colleges through case studies of Native Americans, Latin Americans, and Mexican Americans. Policies, practices, ideologies, experiences, and outcomes from the perspective of both the dominant and minority groups. This course satisfies the American Cultures Requirement. (F, Spring)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. Enrollment limited to 15 freshmen. Staff

40AC. Race and Ethnicity inside Schools. (4) Four hours of lecture/discussion per week. Formerly 40AC taken before fall 2004. Racial and ethnic minorities in American schools and colleges through case studies of Native Americans, Latin Americans, and Mexican Americans. Policies, practices, ideologies, experiences, and outcomes from the perspective of both the dominant and minority groups. This course satisfies the American Cultures Requirement. (F, Staff)

52. Understanding Language in Society. (3) Three hours of lecture/discussion per week. This course explores how language is influenced by social fac- tors. The topics include dialects and standard English, slang, and the influence of gender, identity, and bilingualism on language use, highlighting the diverse ways in which people use language to communicate with one another. A secondary objective is to teach strategies that are proven effective for successful and efficient reading, writing, learning, and studying. These strategies will be applied to the content of this class
and be useful in students’ other classes. (F,SP)

75AC. American Sports, Culture, and Education. (3) Three hours of lecture per week. American sports and athletes have come to signify a complex of variegated meanings that include desire but also disdain. Through the work of a variety of scholars, researchers, and journalists, this course explores the nature and motives of societal structures and practices (embodied in both institutions and individuals) to illuminate the intersections and reciprocal influences of society and sports. The central framework of this course draws on the notion that the space of sports is defined by highly structured societal practices and consumptions. By critically analyzing a variety of these practices, this course attempts to ground a partial reading of other societal forces in American culture. In particular, the course examines the nuanced intersections of sport, race, gender, and class. As an example, the ways in which American sports provide a potential vehicle for social mobility and integration while simultaneously reproducing existing cultural stereotypes and hierarchies. This course satisfies the American Cultures requirement. (F,SP) Van Rheenen

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of semi- nary per week for 15 weeks. One and one-half hours of seminar per week for 10 weeks. Two hours of seminar per week for one unit for 5 weeks. Three hours of seminar per week for one unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter- grade basis. Prerequisites: At discretion of instructor. This course satisfies the American Cultures requirement. (F,SP) Van Rheenen

90A. Learning from Text in Anthropology. (1,2) One to two hours of lecture/discussion per week per unit. Must be taken on a passed/not passed basis. Formerly 90. This course assists undergraduates with reading and study skills. Students learn successful approaches to learning from their texts in anthropology. Staff

90F. Learning from Text in Ethnic Studies. (1,2) One to two hours of lecture/discussion per week per unit. Must be taken on a passed/not passed basis. Formerly 90F. This course assists undergraduates with reading and study skills. Students learn successful approaches to learning from their texts in ethnic studies. Staff

97. Field Studies. (1,4) Course may be repeated for credit. Field study. Must be taken on a passed/not passed basis. Formerly 90. This course provides undergraduates with practice and instruction in the field. Staff

98. Directed Group Study. (1,4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Group meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. (F,SP) Staff

99. Supervised Independent Study. (1,4) Course may be repeated for credit as topic varies. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Tutorial. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor, lower division standing. Supervised independent study or research on topics relevant to educational research courses. Topics to be initiated by students. (F,SP) Staff

Upper Division Courses

100. Educational Psychology for Teachers. (3) Three hours of lecture per week. Prerequisites: Admission to a teaching credential program. Lectures on topics of special interest to teachers, including child and adolescent development, learning, diagnostic- therapeutic activities, and classroom evaluation. Application of these concepts to the school setting and consultation on actual classroom problems. Written assignments and final examination required. Staff

112. Reforms in Elementary Education: Psychological and Social-Cultural Foundations. (3) One hour of lecture, one hour of structured discussion, and one hour of group work per week. Prerequisites: Consent of instructor. Background in psychology. The course will examine the evolution of the amateur athlete in higher education. (F,SP)

114A. Early Development and Education. (4) Three hours of lecture and two hours of fieldwork per week. Theory and research on psychological development from birth through childhood with special attention to relations between developmental theory and educational practice. Directed field observation of developmental phenomena and educational practices. Gage

114D. Practicum in Early Development and Education, Children Birth to Age 5. (4) Two hours of lecture and six hours of fieldwork per week. Prerequisites: 114A recommended. This course will provide students with an understanding of theories and practices in early care and education, specifically focused on infant, toddler, and preschool education. It will also provide an opportunity for students to apply knowledge and reflect upon experiences teaching in a high-quality environment for young children. Course topics will include child development and classroom management, curriculum and instruction, and professional responsibilities. Staff

116A. Perspectives on the Young Child in Society. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. University organized and supervised field programs involving experiences in schools and school-related activities. (F,SP) Staff

116E. Curriculum in the Undergraduate Education Minor. (1) One hour of seminar passage per week. Prerequisites: Consent of instructor. Course introduces students to relationships between and educated. Specific attention will be focused on: (1) curriculum approaches and theories in early care and education; (2) educational research focused especially on literacy teaching and learning; and this course will be examined in practice through observation of preschool-age children. In addition, the course will contribute to understanding of role that literacy can play in the acquisition of literacy in a first and second language. Linguistic and psycholinguistic issues: orality and literacy, discourse text, schema theory, and reading research. Literacy in schools and society in the media and popular culture, as well as depending for its meaning and its practice upon social institutions and conditions. This course satisfies the American Cultures requirement. Hull

143. Introduction to the Teaching of English. (3) Two hours of lecture and three hours of fieldwork per week. Prerequisites: Upper division standing or consent of instructor. Exploration of issues confronting English and English language arts teachers today; curriculum trends and teaching practices; influence or reform efforts since the 1950s on English and language arts curriculum and practice; course assignments to include fieldwork, interviews, and reports. Mahiri, Freedman

145B. Literacy through Literature. (3) Three hours of lecture and three hours of fieldwork per week. Prerequisites: Admission to a teaching credential program. Through the work of a variety of scholars, researchers, and athletes have come to signify a complex of variegated meanings that include desire but also disdain. Through the work of a variety of scholars, researchers, and journalists, this course explores the nature and motives of societal structures and practices (embodied in both institutions and individuals) to illuminate the intersections and reciprocal influences of society and sports. The central framework of this course draws on the notion that the space of sports is defined by highly structured societal practices and consumptions. By critically analyzing a variety of these practices, this course attempts to ground a partial reading of other societal forces in American culture. In particular, the course examines the nuanced intersections of sport, race, gender, and class. As an example, the ways in which American sports provide a potential vehicle for social mobility and integration while simultaneously reproducing existing cultural stereotypes and hierarchies. This course satisfies the American Cultures requirement. (F,SP) Van Rheenen

149. Foundations for Teaching Language Arts. (3) Three hours of lecture per week. Prerequisites: Admission to a teaching credential program. Lectures and workshops on curriculum, instructional theory, and methods for teaching language arts in elementary schools. Incorporates competencies for Reading Instruction Competency Assessment (RICA) and for teaching children whose primary language is not English. Staff

158. Foundations for Teaching Reading in Grades K-8. (2,3) Two hours of lecture per week. Prerequisites: Admission to a teaching credential program summer session excluded. Formerly 258A-258B. Introduction to reading and writing instruction in early childhood and elementary school settings, instructional methods and approaches, assessment procedures, and reading and writing theories. Cunningham

160. Foundations for Teaching Social Studies. (1,3) Three hours of lecture for five weeks. Prerequisites: Admission to a teaching credential program. Formerly 149. Lectures and workshops on curriculum, instructional theory, and methods for teaching social studies in elementary schools. Staff

162A. Teachers’ Work. (3) Three hours of lecture/discussion per week. This course is offered as part of the undergraduate education minor, examines the multiple dimensions of teachers’ work by drawing on theories of teacher socialization and teacher professional learning, and exploring representations of teachers’ work by interacting with teachers in the field. (SP) Mayer

180. Logic of Inquiry. (3) Three hours of lecture per week. An analysis of the logical and epistemological foundations of empirical research. Development of a critical and vigorous approach to empirical inquiry, deductive and inductive logic, the structure of scientific theories, justification, falsification, the role of values, prediction and the nature of causality. Staff
C181. Race, Identity, and Culture in Urban Schools. (3) Three hours of seminar/discussion per week. This course is designed to provide an overview of the major discussions and debates in the area of race and education. The main questions this course addresses are: What role does education play in defining and reproducing gender identity? identity; race and gender equality? We will explore these questions through a series of readings and case studies from the United States, Canada, and Latin America. The course will progress towards an understanding of the larger social contexts in which these issues play out.

184. Philosophical Foundations of Education. (3) Three hours of lecture per week. Systematic survey of educational thought with emphasis on the epistemological, logical and ethical foundations of the major philosophies of education. (F,SP) Staff

185. Gender and Education in the Americas. (3) Three hours of lecture/seminar per week. This course is designed to provide an overview of the major discussions and debates in the area of gender and education. The main questions this course addresses are: What role does education play in defining and reproducing gender identity? identity; race and gender equality? We will explore these questions through a series of readings and case studies from the United States, Canada, and Latin America. The course will progress towards an understanding of the larger social contexts in which these issues play out.

186AC. The Southern Border. (4) Four hours of lecture/discussion per week. The southern border—from California to Florida—is the longest physical divide between the First and Third Worlds. This course will examine the border as a distinct landscape where North-South relations take on a specific spatial and cultural dimension, and as a region which has been the testing ground for such issues as free trade, immigration, and ethnic politics. Also listed as Ethnic Studies 159AC and Geography 159AC. This course satisfies the American Cultures requirement.

187. Cooperatives and Community Development: Education for Ownership. (3) Three hours of lecture per week. A survey of cooperative development strategies to strengthen communities, create economic opportunity and provide needed services. Examines the role of education in creating a member-owned, democratically controlled organization. Students will design and assess the feasibility of their own cooperative venture. (Hurst)

189. Democracy and Education. (4) Four hours of lecture per week. Prerequisites: Junior standing or consent of instructor. Education as a vehicle for furthering the ideals of democratic societies—critical study of principles, philosophies, theories, and practices designed to develop understanding, commitment, and skills necessary to participate in a truly democratic society dedicated to achieving equality, justice, and peace in the world. (Hurst)

190. Current Issues in Education. (4) Four hours of lecture/discussion per week. Through lecture and discussion, students will examine current issues in education. Topics will be identified by the instructor, and students will work in small groups with a theoretical orientation in mind to discuss the problems and possibilities involved. Course may be repeated for credit. (Hurst)

200A. Cognitive Development. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Development of cognition from birth to maturity. Piagetian and information processing theories and research. Vygotsky's theory. Primary emphasis on normal human development; secondary emphasis on atypical and animal cognition. Infant perception and cognition, early childhood cognition, memory and problem solving in middle childhood and adolescence. Cognitive understandings of academic skills. Relations between cognitive development and children's home and school environments. (Hurst)

200B. Social Development. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. An examination of theory and research on social development from childhood to adulthood. Review of different theoretical orientations to social cognition, morality, psychosexual development, and the role of social-environmental factors. (Hurst)

200C. Culture and Cognitive Development. (3) Three hours of lecture/discussion per week. Prerequisites: 200A and consent of instructor. This course explores the advanced topic in Piaget's and Vygotsky's frameworks for the analysis of cognition development. Of particular concern is the representation of cultural processes in each treatment. Reading will include selected primary sources from current writers who extend and criticize the treatment of culture in each. (Hurst)

200D. Psychosocial Development: Identity, Culture, and Education. (3) Three hours of lecture per week. Prerequisites: One course in statistics. This course explores a methodological seminar in developmental psychology, with a broad focus on psychosocial development and its impact on children in educational contexts. The course begins with a discussion of Erikson's psychosocial theory and the sociocultural perspectives of Vygotsky and other theorists. We then review some of the major psychosocial variables related to educational achievement, including competence, motivation, self-concept, self-efficacy, self-regulation, and volition. We touch briefly on moral development and values as psychosocial factors affecting correlates. We examine: (a) how social and cultural contexts influence what is taught and how it is taught; (b) the role of identity in different cultural contexts; (c) the impact of these factors on student achievement and student behavior; and (d) the role that identity plays in helping students develop a sense of future. (F) Worrell

200E. Neo-Vygotskian Perspectives on Cognitive Development. (3) Three hours of seminar per week. Prerequisites: 200C or its equivalent. This seminar explores interpretations of Vygotsky's writings on cognition and its developmental foundations. The seminar will consider Vygotsky's books, Thought and Language and Mind in Society, and also read scholars who build on Vygotsky's seminal ideas—those who use his students, like Luria and Leontiev, as well as contemporary writers, like Cole, Bruner, Wertsch, and Olson. A focus throughout the seminar will be on activity-oriented treatments of cognition that incorporate social and historical (local and large-scale) processes as key constructs. Through individual student projects, we will explore problems and prospects such approaches present with particular regard for analytic and empirical concerns of seminar participants. (F) Saxe

201A. Psychology of Reading. (3) Three hours of lecture per week. Comparison and analysis of the psychological and linguistic evidence underlying whole language, phonics, and traditional methods of reading instruction. Topics include reading research, analysis of the English spelling system and decoding, vocabulary development, models of reading, individual differences, and comprehension and schema theory. (Cunningham)

201B. Seminars in Intellectual Development. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Relevant courses from the 200 sequence and consent of instructor. Intensive examination of advanced topics, which will vary from year to year in the areas denoted by the titles of the following sections:

(1) Cognitive Development
(2) Learning and Memory Development
(3) Language. Staff

2020. Seminars in Social and Personality Development. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Relevant courses from the 200 sequence and consent of instructor. Intensive examination of advanced topics, which will vary from year to year in the areas denoted by the titles of the following sections:

(1) Social Development
(2) Motivation
(3) Personality Development. (Hurst)
204C. Research Seminars: Inquiry in Educational Psychology. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. The research seminar in Educational Psychology requires that students complete extensive projects of documentary and empirical research. As they engage in these projects, students will write papers on related topics for a class anthology. (F,SP) Ammon

213A. Conceptual Bases for School Psychology. (3) Three hours of lecture and six hours of fieldwork per week. Historical and contemporary overview of the professional school psychology. Staff

213B. Theoretical and Scientific Bases for School Psychology Practice. (3) Three hours of lecture per week. Examines the empirical evidence for developmental and learning models in relation to the school curriculum and the organization from elementary through high school. Staff

213C. School-Based Consultation. (3) Three hours of lecture per week. Theories of consultation, consultation methods, and research on consultation applicable to primary and secondary prevention of school failure and school psychology practice. Worrell

213D. Educational Interventions for the School Psychologist. (3) Three hours of lecture per week. Theories and procedures for individual and group assessment of children’s learning and behavior problems as applied to the design of individual and group programs in the classroom. Staff

213L. Laboratory for School Psychology. (1) One hour of discussion and six hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Theory laboratory section to evaluate field work records and research and clinical supervision is intended to be taken concurrently with 213A-213B-213C-213D. Staff

214. Human Development and Education Seminar. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Staff

Prerequisites: Graduate standing and consent of instructor. Report, one-hour seminar and discussion of original research in the area of human development and education. Not all participants are required to report in any given semester, although students will contribute to the seminar each week. Strongly recommended for all students in the graduate program in human development and education. Staff

215. Socialization Processes Within the Family. (3) Three hours of lecture per week. This course provides an overview of theoretical perspectives on family socialization. We review the literature on parental beliefs and child-rearing practices and study how families influence children’s social development. We also examine families in the context of culture and social class. The course concludes by focusing on the relationships between families and schools. Course requirements: class participation, three short papers, reaction to readings note, complete one notebook. (F,SP) Ammon

221A. Towards Ambitious Instruction in Mathematics: Research Into Practice. (3) Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. In this course, students learn to turn mathematics education research into practice through the vehicle of lesson design. Students work in collaborative teams consisting of one beginning mathematics teacher in a teaching credential program and one or more doctoral student researchers. Together each team is responsible for designing, justifying, implementing, researching, and re-designing a lesson that seeks to embody one key aspect of the teacher’s vision of effective mathematics instruction. (3) Course may be repeated for credit. Consent of instructor required. Three two-hour seminar/discussion per week. Staff

221B. Special Problems in Mathematics, Science and Technology Education. (2-6) Course may be repeated for credit. Consent of instructor required. Two to six hours of lecture/discussion per week. Staff

221C. Advanced Human Development and Education. (4-4) Three hours of lecture/discussion and three hours of fieldwork per week. Prerequisites: Admission to Developmental Teacher Education Program or consent of instructor. Advanced principles of human development and their application to elementary and preschool education. Topics include: cognitive development, moral and social development, language acquisition, psycho-social perspectives on social-emotional development, and a developmental perspective of the classroom organization. Also supervised child study, individual and small group tutoring, and field experiences. Gearhart

211C-211B. Human Development and Education. (4-4) Three hours of lecture/discussion and three hours of fieldwork per week. Prerequisites: Admission to Developmental Education Program or consent of instructor. Introduction to theories of human development and their application to elementary and preschool education. Topics include: cognitive development, moral and social development, language acquisition, psycho-social perspectives on social-emotional development, and a developmental perspective of the classroom organization. Also supervised child study, individual and small group tutoring, and field experiences. Sahe

212. Adolescent Development and the Teaching of Secondary English. (3) Three hours of lecture/discussion and three hours of fieldwork per week. Prerequisites: Consent of instructor. The research seminar in Multicultural Urban Secondary English Teaching Credential Program. This graduate seminar relates the goals of secondary English teaching to three major themes in the study of adolescent development: rational thought, self-identity, and their motivational consequences. Students write papers on related topics for a class anthology. (F,SP) Ammon

222A. Mathematical Thinking and Problem Solving. (3) Three hours of lecture per week. This course explores contemporary research on mathematical cognition and its implications for “higher order thinking skills” and mathematical problem solving. We discuss various frameworks for characterizing mathematical behavior and various methodologies for examining it. As an “action oriented” course in the EMST curricular sequence, this course includes a major course project. In their project, students engage in research incorporating the main ideas studied in this course. (SP) Ammon
tecture of knowledge, and the control of cognition. Also listed as Psychology C232. Ranney

229D. Discourse and Learning in Math and Science Classrooms. (3) Three hours of seminar per week. Prerequisites: Graduate standing, or advanced major in linguistics, cognitive science, or related field with consent of instructor. This seminar is an introduction to research on how language and other forms of communication influence what and how people learn. Students take part in influential discourse from sociolinguistics, psycholinguistics, and the philosophy of language and learn about how they have been used to understand learning, especially in math and science classrooms. Students take turns helping lead discussion and complete a project relevant to the topic and their own research interests. (F.SP) Engle

229F. Conceptual Change. (3) Three hours of lecture per week. "Conceptual change" concerns broad and deep changes in a person's knowledge about a domain. This opposes it, for example, to the learning of facts and skill acquisition. The course emphasizes recent cognitive science-oriented approaches to defining "broad and deep" learning; understanding its properties. It draws on diverse other approaches including developmental psychology; analogies to the history of science; "misconceptions"; computational and epistemological approaches; and social reconstructions. Comparative study will address issues such as these: What does literal convey to individuals and cultures? How do the properties of the material basis into social value, and how? Are new literacies really possible? di Sessa

231. Introduction to Secondary School. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Admission to a credential program. Seminars to meet requirements for the single subject credential. Subject areas include educational psychology; instructional strategies; learning processes; and secondary school mathematics, science, and technology. Staff

232. Problem Solving and Understanding in the Elementary School Classroom. (3) Three hours of seminar per week. An examination of research relevant to the analysis and development of children's problem solving and understanding in the elementary school classroom. Considered includes inquiry into the nature of different science analyses of problem solving and understanding; meta-cognitive and epistemological perspectives on problem solving; classroom-based subject matter curriculum analysis in mathematics, literacy, history, and science; and social-cultural analyses of school practices. (F) Metz

235. Elementary Teaching in Mathematics and Science. (3) Three hours of lecture per week. Prerequisites: Admission to Developmental Teacher Education Program or Curriculum, Instructional theory, and methods for teaching mathematics and science in elementary schools. Staff

240A. Language Study for Educators. (3) Three hours of lecture/discussion per week. This course will introduce students to the broad areas of language study and explore the implications of such study for teaching and learning. Among course topics are: the nature of language, the meanings of "grammar," the varieties of English, the development of language in the preschool years. This course will be required for all Ed.D. students and recommended as an introductory course to all students who have had no formal coursework in linguistics. Baquedano-López

240B. Theoretical Issues in the Study of Literacy. (3) Three hours of lecture per week. Formerly 240A. Students will review trends in literacy theory, and then will examine current theories of written language acquisition and literacy learning. Connections will be made between research, theory, and practice. Hull, Mahiri

240C. Issues in First and Second Language Acquisition. (3) Three hours of seminar per week. Prerequisites: Course in linguistics or language acquisition. Formerly 226C. Study, in particular, of relationships between language learning and school-age children: How do they acquire the language skills needed for literacy and academic development? How do children make the transition from home to school language use? How do children learn a second language? What happens when learning a second language results in the loss of the first language? We will consider the educational, social, and cognitive implications of these issues. Staff

240D. Foundations of Curriculum Theory in the United States: A Survey. (3) Three hours of lecture per week. This course explores the development of curriculum theory and the role of the curriculum specialist in the United States throughout the Progressive Period. Emphasizing a survey of classic texts and key figures, the course covers the development of three schools of thought: social/economic efficiency approaches; child/developmentalist approaches; and social reconstructivist approaches. It concludes with a study of curriculum theory since the Reconstructivists. Staff

241B. Language Socialization. (3) Three hours of seminar per week. Throughout the lifespan, we are socialized through language to become competent participants in particular social and cultural communities, including schools. For the past 20 years, this theory and method for analyzing human development has made important contributions to our understanding of competent members of community, how we learn through language, and how we are socialized into language. This course will provide opportunities to overview the theoretical cornerstones of language socialization as a field of study, as well as review current studies and chart future research trajectories. Course participants are expected to collect and analyze audio/video data from an educational and other learning context where language socialization might be taking place. (F) Baquedano-López

241C. Narrative Across Learning Contexts. (3) Three hours of lecture per week. The study of narrative has solidified into an important body of literature that is of particular relevance to educators. Across learning contexts, narrative is a ubiquitous literacy tool, and as such, it underlies many learning activities. We will examine narratives for their potential to explain, rationalize, and delineate past, present, and possible experience. This narrative act is a collaborative undertaking, co-told and designed with the audience's input, addressing an audience's present and future concerns. Narrative can be framed to represent the interests of individuals and community among those participating in narrative activity, yet narratives can become sites for rejection and contestation. Narrative is also a socializing tool. This course will focus on methodological approaches to the study of narrative that are relevant to the field of education. Students enrolled in this course are expected to collect narrative samples from naturally occurring interactions (video and audio-taped approaches, written narrative text, or other. (F) Baquedano-López

244B. Methods for Teaching English in the Secondary Schools. (4) Hours of lecture per week. Prerequisites: Admission to CLAD/Secondary Schools Credential Program or consent of instructor. Formerly 244A. Emphasis is placed on designing, articulation, and implementation of reading-language curricula for grades through college. Dynamics of personal leadership basic to successful curricular implementation is stressed. (F,SP) Staff

244C. Methods for Teaching English in the Secondary Schools. (3) Three hours of lecture per week. Prerequisites: Enrollment in CLAD/Single Subject English Credential Program or consent of instructor. Formerly 244B; or consent of instructor. Formerly 256B. Focuses on students' use of language from interrelated perspectives, particularly development, societal, sociolinguistic, and ethnographic. Designed to provide students with a view of the classroom as a unique setting whose aims are fostered or rendered problematic by the nature of language use. Students will conduct small-scale studies in classrooms. Baquedano-López

250B. Second Language Acquisition: Concepts and Theories. (3) Three hours of seminar per week. Formerly 253A. Psycholinguistic theory and research on the acquisition of second languages by learners at all ages. Focus is on both first- and second-language learners. Emphasizes to what extent do adults learn languages other than their own in instruc-
tional settings? What skills can they transfer from their native languages, and literacy in L1 transfer to the way the L2 is used in its spoken and written forms? Exploration of various hypotheses and theories that consider language learning from a linguistic, cognitive, and discourse perspective. Topics include: interlanguage hypothesis; input; transfer and variation in second language acquisition; interlanguage strategies; affective and cultural variables; schema theory; speech act and discourse theory; and cross-cultural pragmatics. Kramsch

250C. Discourse Analysis. (3) Three hours of seminar per week. Examination of the major linguistic, psycho- and sociolinguistic concepts and theories of discourse and their application to the analysis of spoken and written texts in education. Topics include: coherence and cohesion, deixis, speech acts, genres, syntax, and markers for rhythm and scripts and frames, information structure, narrative structure. Kramsch

250D. Language and Identity. (3) Three hours of lecture/discussion per week. Relationship between language as social practice and the construction of individual and collective identity, and its significance in educational contexts. Topics covered include: language as embodied practice; language and subjectivity; pedagogy and symbolic control; language learning and development; and as the social construction of identity; writing and textual identity; authorship and voice; language learning memoirs as acts of identity; the politics of recognition; linguistic humanism responsive to the human rights. Kramsch

252A. Reading Research: Sociocognitive Perspective. (3) Course may be repeated for credit. Three hours of seminar per week. Formerly 251A. An examination of selected topics on reading research, including historical aspects of reading research, word recognition, reading comprehension, syntax, the relationship between decoding and comprehension, attitudes toward reading, and models of the reading process. Cunningham

252B. The Ethnography of Reading. (3) Three hours of seminar per week. This course approaches reading as a socio-cultural activity and considers recent ethnographic work on reading practices in different educational settings, communities, and historical epochs. By considering how reading is differently conceived and realized in a range of contexts, this course will shed light on reading as a historically contingent, ideologically shaped, and socio-culturally organized practice. More specifically, this course has a twofold aim: (1) to introduce students to recent ethnographic research on reading practices; (2) to familiarize them with ethnographic methodology. To this scope, in addition to reading exemplary studies of reading practices, students will also conduct a small-scale ethnographic research project in settings of their choice. (F) Sterponi

253A. Research in Writing. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: 240B (formerly 242) or consent of instructor. Formerly 252C. Critical examination of major theories and approaches to research in writing. Preparation for designing and conducting research projects on the written language. Freedman

255A. Issues in the Study of Bilingualism. (3) Three hours of lecture/discussion per week. Formerly 255A. Writings in methods of sociolinguistic frameworks. Students will examine key issues in the study of bilingualism. Attention will be given to such areas as definitions and typologies of bilingualism, the acquisition of bilingualism, and sociolinguistic research methods measured for bilingualism, and the nature of societal bilingualism. Much time and attention will be devoted to questions and controversies surrounding bilingualism and education. Wilson

257. The Student Athlete and Educational Institutions. (3) Three hours of lecture/discussion per week. Student athletes face a dilemma. They are expected to be both successful in the classroom as well as on the field of play. The academic and the athletic dimensions of student-athletes are often in conflict, and they must face the difficult task of resolving this conflict. This course examines the writing and research on student athletes from a sociological, psychological, and educational perspective with a particular focus on the educational roles of coaches. Topics covered may include theories of sport in society, the institutional relationship between sport and education, and academic identities, self-regulated learning and study skills, career development and employment, coaches as teachers, the language of sport, and the role of race, class, and gender. Simons, Van Rheenen

258. Academic Support Services for Student Athletes. (3) Three hours of lecture/discussion per week. The increased institutionalization and regulation of intercollegiate athletics as a specialization and specialization of career field composed of counselors, academic advisors, learning specialists, tutors, and technological and administrative support staff. This course will examine the historical, philosophical, and ethical foundation of these services, focusing in particular on the analysis of an academic advising and tutorial program for student athletes. (SP) Van Rheenen

260A. Issues in Educational Administration and Policy. (3) Three hours of lecture per week. Required of all students in the Division of Educational Administration and Evaluation. Concepts, theories, and issues related to education and evaluation. Application is made to the educational and social institutions. Fuller

261A. Organization Theory in Education and Other Social Services. (3) Three hours of lecture per week. Concepts of power, authority, legitimacy, professions, controls, incentives, etc., as they apply to education or other social services. Fuller

262B. School Supervision: Theory and Practice. (3) Three hours of lecture per week. Concepts and practices associated with the analysis of teaching and clinical supervision of teachers in urban systems. The role of the urban school leader in supervising teachers. Tredway

262C. Personnel Administration in School Systems and Social Organizations. (3) Three hours of lecture per week. Concepts and practices related to the administration of personnel services in urban school systems and social organizations. Tredway

262D. Research Group on the Working Lives of Teachers. (3) Three hours of lecture per week. Concepts and practices associated with the analysis of teaching and clinical supervision of teachers in urban systems. The role of the urban school leader in supervising teachers. Tredway

262E. Teachers’ Work and Contexts of Teaching. (3) Three hours of lecture/discussion per week. Formerly 285A. Introduction to sociological and socio-cultural research on teachers’ work and the occupational, organizational and policy contexts of teaching. Overview of research related to teachers’ work, followed by in-depth focus in one or two areas of theory development and empirical research, e.g., conceptions of teaching as work; representations of teacher knowledge and teacher learning: investigations of teachers’ communities of practice; conceptualizing and studying the school as workplace. (SP) Little

262F. Organizational Policy and Teachers’ Work. (3) Three hours of seminar per week. Students will examine the ways in which state, district, and workplace policy bears upon various aspects of teachers’ work. Special emphasis will be placed upon the various policy choices—at whatever level—that shape the experience of teaching and the organization of schooling. Among the policy areas considered are those governing methods of occupation, teaching assignments, classroom autonomy regarding curriculum and instruction, performance evaluation, and opportunities for professional development. This course is a requirement for students in educational administration and those students completing the Professional Administration Services Credential. It is open to all other interested students. Little

263A. Legal Issues in Educational Practice. (1-3) Two hours of lecture per week. Five weeks per unit. Formerly 285B. Legal structures and practices for teachers and counselors. Teacher, pupil, counselor rights and responsibilities. Staff

263B. Legal and Policy Issues in Urban Educational Leadership. (3) Three hours of lecture per week. Prerequisites: Administrative Leadership Institute Program. This course will explore the statutory and judicial constraints upon local decision making, as well as the areas in which site decision making is permitted and required. (SP) Staff

265A. Economics of Education and Other Social Institutions. (3) Three hours of lecture and one hour of conference per week. Topics to be considered include the following: alternative methods of assessing the contribution of education to economic growth; demand for education services; education production functions; cost analysis and sectoral planning; economic aspects of innovation. Grubb

269. The Progressive Tradition in American Education. (3) Three hours of lecture per week. Progressive educators have long sought to center curriculum development and empirical research, e.g., concepts of education and democratic education. Provides extensive feedback on all phases of research and its application to the democratization of education. Topics range depending on students’ interests and academic identity, and the evolution of social movements for racial justice in education. (F,SP) Perstein

270B. BEAR Center Seminar. (2,3) Course may be repeated for credit. Two hours of seminar and one hour of discussion per week. This seminar constitutes one of the ways in which the Berkeley Evaluation and Assessment Research (BEAR) Center fulfills its role of supporting student research. The topic of the seminar will change from semester to semester in response to student interests and needs. The seminar is an opportunity for students and faculty to present their recent and ongoing work for in-depth review and commentary. In addition, visitors to the campus with expertise relevant to the topic(s) under examination will be invited to present at the seminar and join in the discussion. Students taking this course for two units will make a presentation of a current research interest to the seminar. Students taking this course for three units will also be required to attend a one-hour discussion following each presentation and will write a critique of one other student’s presentation. Formerly 288B.

271B. Introduction to Qualitative Research Methods. (3) Three hours of lecture/discussion per week. Formerly 288B. Introduces principles and methods commonly associated with qualitative field research methods. Includes readings on basic methodological topics—structured interviews related to research design, research ethics and human subjects protection, data collection, data organization and reduction, data analysis; and field research experience through individual or small group fieldwork. Course satisfies the qualitative methods requirement for students in the Policy, Organization, Measurement, and Evaluation (POAME) program. Little

271C. Advanced Topics in Qualitative Research. (3) Three hours of lecture per week. Prerequisites: 271B
or equivalent. Formerly 289C. An advanced topic in the theory or practice of interpretive research will be introduced and examined. Topics might include the application of qualitative research techniques such as ethnography, the use of a variety of qualitative data collection strategies such as focus groups, and the use of qualitative data analysis software such as NVivo.

271G. Research Methods in Educational Leadership: Qualitative Methods. (3) Three hours of lecture per week. Prerequisites: Good standing in LEEP Program. This course introduces future educational leaders to the world of qualitative research so that they will be able to read qualitative studies intelligently, and to design and conduct qualitatively oriented studies themselves. Beginning with an overview of the epistemological assumptions behind different kinds of research, the course will explore various types of qualitative research designs, presentation papers, and writing. The class is designed so that students simultaneously read about the development of qualitative research methods, and conduct research themselves. (F) Coburn

272B. School Data Analysis for Principals. (1) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. This year-long research and writing group is intended for graduate students who plan to specialize in studying educational leaders and implementing school improvement. In the course, we will investigate what happens from the time a policy is enacted until the policy is actually implemented in classrooms, schools, and districts. The centerpiece of the research group is reviewing completed financial leadership can improve the opportunities for development and providing feedback to students on their works-in-progress related to policy implementation. The goal is to strengthen participants’ preparation for research in this area by becoming familiar with a variety of methodological options for collecting and analyzing data, and by exploring the types of research questions that can be addressed through the use of secondary data. Readings, practical experiences, and research literatures relevant to specific evaluation questions and methods. Also provides additional instruction on how to use project data in an interactive setting to improve student performance and focus on design, methodology, and research questions of specific projects being conducted by the students. Staff

273B. Research Group on Policy Implementation. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. This year-long research and writing group is intended for graduate students who plan to specialize in studying educational leaders and implementing school improvement. In the course, we will investigate what happens from the time a policy is enacted until the policy is actually implemented in classrooms, schools, and districts. The centerpiece of the research group is reviewing completed financial leadership can improve the opportunities for development and providing feedback to students on their works-in-progress related to policy implementation. The goal is to strengthen participants’ preparation for research in this area by becoming familiar with a variety of methodological options for collecting and analyzing data, and by exploring the types of research questions that can be addressed through the use of secondary data. Readings, practical experiences, and research literatures relevant to specific evaluation questions and methods. Also provides additional instruction on how to use project data in an interactive setting to improve student performance and focus on design, methodology, and research questions of specific projects being conducted by the students. Staff

275B. Data Analysis in Educational Research II. (4) Four hours of lecture per week. Prerequisites: 293A and 293L or equivalent recommended or consent of instructor. Formerly Educational Psychology 208B. This course will cover basic techniques of descriptive statistics, concepts of statistical inference, and methods for assessing student performance. Particular attention will be given to tests and assessments used in California. (F) Staff

275L. Educational Data Analysis Laboratory II. (1,2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Linear and logistic regression, equivalent to 275B. Multilevel modeling. Will be useful when the units of observation are grouped in clusters, such as students in schools, patients in hospitals, or prisoners in prisons. The research group is for students who wish to analyze such data or who wish to learn more about modeling clustered data. Other examples of clustering are people nested in neighborhoods, hospitals, or firms. Students will practice formulating and estimating hierarchical models using either educational data sets provided or their own data sets. (F;SP) Rabe-Hesketh

275M. Multilevel Modeling. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Educational Psychology 208M. This course provides an introduction to the field of multilevel modeling (“programs” might be curriculum innovations, school reorganizations, teacher training reforms, instructional methods innovations, funding programs, etc). It will give an overview of issues of concern to practitioners including the design, data collection, and research literatures relevant to specific evaluation questions and methods. Also provides additional instruction on how to use project data in an interactive setting to improve student performance and focus on design, methodology, and research questions of specific projects being conducted by the students. Staff

276D. Evaluation Theory. (3) Three hours of lecture per week. Prerequisites: 276A. This course will provide students with a basic understanding of evaluation theories, with systems for categorizing these theories, and with an understanding of the processes for theory development in evaluation. Newton

276E. Evaluation Procedures. (3) Three hours of lecture per week. Prerequisites: 276A. This course covers the basic stages and strategies for conducting program evaluations within selected educational frameworks, such as those focusing on school-based, for- and focused evaluation, theory-based evaluation. Students will focus their own evaluation studies, identify questions, develop instruments, collect data, and write/present an evaluation report. Hofstetter

279A. Research Methods in Educational Leadership: Qualitative Methods. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course examines management tools and methods of effective leadership of school districts in California. The course will present strategies from both business and educational perspectives and will challenge conventional financial management practices in California school systems. Specific areas of emphasis will be on: maximizing the effective use of educational resources (e.g., financial analyses, budget techniques, cost analyses, management information systems, understanding and reform of public school expenditures (e.g., state and federal legislation); and accomplishing the educational objectives of the school system through financial application (cost analysis and project management techniques). The underlying assumption is that in- formed financial leadership can improve the opportunity to achieve educational achievement and equity in public school organizations. (F;SP) Gifford

279B. Research Methods in Educational Leadership: Quantitative Methods. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course examines management tools and methods of effective leadership of school districts in California. The course will present strategies from both business and educational perspectives and will challenge conventional financial management practices in California school systems. Specific areas of emphasis will be on: maximizing the effective use of educational resources (e.g., financial analyses, budget techniques, cost analyses, management information systems, understanding and reform of public school expenditures (e.g., state and federal legislation); and accomplishing the educational objectives of the school system through financial application (cost analysis and project management techniques). The underlying assumption is that in- formed financial leadership can improve the opportunity to achieve educational achievement and equity in public school organizations. (F;SP) Gifford

280A-280B. Seminar: Prosocial Sociocultural Critique of Education. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. These seminars address critical themes and issues in the sociocultural critique of education. In what ways can philosophical, sociological, anthropological, historical, and psychological forms of inquiry be brought together to bear on the analysis of learning, on schooling, and on education more generally? What do we mean by critical and interpretive theories, and what are their relations with social practice? How can education come to constitute itself otherwise than in its current form? Staff

280C. Practicum in Evaluation. (2-4) Course may be repeated for credit. Two hours of seminar biweekly, alternating with four-hour laboratories. Prerequisites: Consent of instructor. Formerly 293F. This course will provide an evaluation or assessment project as graduate student researchers or part of a practicum or apprenticeship experience. The purpose of this course is to give students practical experience in all of the areas of evaluation theory and research literatures relevant to specific evaluation questions or methods. Also provides additional instruction on how to use project data in an interactive setting to improve student performance and focus on design, methodology, and research questions of specific projects being conducted by the students. Staff

280D. Evaluation Theory. (3) Three hours of lecture per week. Prerequisites: 276A. This course will provide students with a basic understanding of evaluation theories, with systems for categorizing these theories, and with an understanding of the processes for theory development in evaluation. Newton

280E. Evaluation Procedures. (3) Three hours of lecture per week. Prerequisites: 276A. This course covers the basic stages and strategies for conducting program evaluations within selected educational frameworks, such as those focusing on school-based, for- and focused evaluation, theory-based evaluation. Students will focus their own evaluation studies, identify questions, develop instruments, collect data, and write/present an evaluation report. Hofstetter

280F. Research Methods in Educational Leadership: Quantitative Methods. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course examines management tools and methods of effective leadership of school districts in California. The course will present strategies from both business and educational perspectives and will challenge conventional financial management practices in California school systems. Specific areas of emphasis will be on: maximizing the effective use of educational resources (e.g., financial analyses, budget techniques, cost analyses, management information systems, understanding and reform of public school expenditures (e.g., state and federal legislation); and accomplishing the educational objectives of the school system through financial application (cost analysis and project management techniques). The underlying assumption is that in- formed financial leadership can improve the opportunity to achieve educational achievement and equity in public school organizations. (F;SP) Gifford

280G. Research Methods in Educational Leadership: Qualitative Methods. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. These seminars address critical themes and issues in the sociocultural critique of education. In what ways can philosophical, sociological, anthropological, historical, and psychological forms of inquiry be brought together to bear on the analysis of learning, on schooling, and on education more generally? What do we mean by critical and interpretive theories, and what are their relations with social practice? How can education come to constitute itself otherwise than in its current form? Staff
280C. Research Apprenticeship and Qualitative Methodology Seminar I. (3) Three hours of seminar per week. Prerequisites: 280A or consent of instructor. The emphasis in this course is on the practice of research. Each student, ordinarily in the second year of graduate study, develops a research project with a faculty mentor and carries it out under direction. At the end of this work, a seminar paper is written. In this seminar, short written assignments during the first eight weeks result in a research proposal to be carried out by the end of the semester. Students spend about 50 hours on the field research. Shaiken

280D. Research Apprenticeship and Qualitative Methodology Seminar II. (3) Three hours of seminar per week. Prerequisites: 280C or consent of instructor. This is the second in a sequence of courses on the practice of research. In the first semester students work with faculty mentors and in the seminar to carry out a field research project. Continuing both apprenticeship and seminar, this semester is devoted to analyzing the field materials and preparing a paper on the research. Shaiken

280F. Dissertation Seminar. (3) Course may be repeated for credit. Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Recommended for doctoral students preparing dissertation proposals and dissertations. Staff

282A. Families, Classrooms, and Social Change. (3) Three hours of seminar per week. In this seminar, socialization processes of social structure, process and change on classroom learning in contemporary society. Seminar discussions will focus on research and theory relating classroom learning to socialization and opportunity structures, current trends in interdisciplinary and family-classroom articulations. (F,SP) Staff

283B. Historical Perspectives on American Education. (3) Three hours of lecture per week. Public schooling today reflects a long evolution, producing and reproducing inequalities as well as democratic aspirations. Politicians, teachers, school reformers, and others interested in education invoke elements of this history to justify their efforts. This course examines the relationship of the changing goals, organization, and practices of American schools to broader social, economic, political, and intellectual developments. Perlstein

283D. Popular Education. (3) Four hours of lecture per week. The empowerment of adults through democratically structured cooperative study and action directed toward achieving more just and peaceful societies within a life-sustaining global environment. The historical development of theory and practice as well as key contemporary issues will be discussed. This major international educational movement and its associated research model—participatory research—will be examined using case studies and theoretical works. Our principal method will involve group discussion and case studies that illustrate conceptual models and develop practical strategies for integrating theory and practice. (F,SP) Staff

283E. Research Group on Education and Social Change. (2) Course may be repeated for credit. Two hours of discussion/analysis per week. Prerequisites: Consent of instructor. Graduate research group specializing in research on teaching, learning, and social change in urban landscapes and within their myriad contexts (e.g., schools, families, neighborhoods, community organizations, and peer groups). Strengthens preparation for research and action through exploratory work on all stages of the research process and supports the development and sustenance of a community of engaged scholars. Discussion of special topics as relevant. (F,SP) Seyer-Ochi

283F. Urban Education. (3) Three hours of seminar per week. This course will explore urban education and how it is linked to urban poverty, broad systemic racism, political and economic trends and public education in inner-city schools. The impact of these large societal phenomena upon drop-out rates, school climate, teacher morale, and academic achievement will be analyzed through a combination of reading and field research in Oakland and Berkeley schools. An examination and evaluation of current proposals for reform of urban schools will also be included. (F,SP) Marks

284A. Philosophy of Education. (3) Three hours of lecture per week. Philosophical analysis applied to current educational problems and key concepts. (F,SP) Tredway

285. Globalization and International Education. (3) Three hours of seminar per week. What is globalization? What are the implications of living in a “global world” for educational systems? In this course, we explore these questions by first examining various theoretical perspectives on globalization. We will then discuss several major developments associated with globalization that are affecting different levels of education (from primary to university), including the rise in academic “knowledge” production, the knowledge economy, and immigration. We will consider the role of international organizations such as the World Bank and the United Nations in shaping international policy related to education. We will also examine the role that state, local communities, and non-governmental agencies play in providing and improving the quality of education. In the final part of the course, we examine topics including language policy, technology, and strategies to combat educational inequality. To explore these topics, we will read and discuss case studies from Asia, Africa, Latin America, and the United States to provide a wide range of perspectives on the education of African American children and adolescents in the United States. Readings will support students in understanding some of the key issues and tensions in African American education and school achievement, including the roles that culture, identity, parents, families, and communities play in the education and schooling of African American students; systemic issues in education and school achievement and the perpetuation of “achievement gaps”; and language and power. Also listed as African American Studies C286. (SP) Nasir

289. Comprehensive Health Education for Teachers. (1) Three hours of lecture for five weeks. Prerequisites: For students admitted to teacher education programs only. This course addresses comprehensive school health education, including content areas of health instruction in the California Health Framework for teachers K-12, e.g., nutrition, communicable diseases, drugs, and health education. Recommended for community college faculty, and field research in Oakland and Berkeley schools. (1-4) Staff

290. Special Topics Seminars. Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Topics vary from semester to semester and section to section. (F,SP) Staff

290A. Policy, Organization, Measurement, and Evaluation (POME). (1-4) Staff

290B. Education in Language, Literacy, and Culture. (1-4) Staff

290C. Cognition and Development. (1-4) Staff

290D. Special Topic Seminar. (1-4) Staff

290E. Special Topics Seminar. (1-4) Staff

291A. The Educational System of the United States. (3) Three hours of lecture/presentation and one hour of discussion per week. Prerequisites: Graduate standing or consent of instructor. Historical development and contemporaneous status of the major features of the educational system. Current major issues and trends in schooling. The course will stress the relationships between education and other sectors of society. Grubb

291E. Equity, Inequality, and Opportunity in Education. (3) Three hours of lecture/seminar per week. Questions of equity, inequality, and opportunity are among the central issues of educational research. We examine what causes inequalities, which policies minimize inequality, and which exacerbate them. The course asks: When and why do questions of equity and inequality matter? Which groups matter when we talk about inequality? What are the explanatory frameworks that attempt to analyze inequality and what analytic tools are useful in examining these issues? (F) Grubb, Seyer-Ochi

293A. Data Analysis in Education Research. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. Introduces students to quantitative statistical methods for educational research. Emphasizes parameter estimation and hypothesis testing, in particular contrasts among means, medians, proportions and correlation coefficients. Section 1 takes a conceptual and heuristic approach and includes a module on distribution free statistics. Section 2 takes an algebraic approach and includes a module on multiple regression. High school algebra is strongly recommended for Section 2. (F,SP) Staff

293L. Educational Data Analysis Laboratory. (1) Two hours of laboratory per week. Prerequisites: Must be taken concurrently with 293A. Exercises and computer programs are provided. Staff

293V. Video-Analysis Seminar. (1-3) Course may be repeated for credit. One to three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This ongoing seminar is for anyone devoting a significant portion of a given semester to analyzing video records as part of their research. Video-based data are now ubiquitous in educational research and this group is designed to help us all become more savvy at analyzing them. Strands of the seminar, each worth 1 unit, will be devoted to participating in video-analysis sessions, reading about video-analysis methods, and completing a paper on your own video-analysis project. (F,SP) Engle

294A. Thesis Seminar: Policy, Organization, Measurement, and Evaluation (POME). (1-4) Course may be repeated for credit. Three hours of seminar and four hours of independent study per week. Formerly 294. Recommended for M.A. students working on seminar papers or theses, and doctoral students preparing dissertation proposals. Topic varies with instructor. Staff

294B. Thesis Seminar—ELLC. (1-6) Course may be repeated for credit. One to three hours of seminar per week. Additional units earned by completing four hours of independent research. Prerequisites: Consent of instructor. Formerly Education in Language and Literacy 294. Recommended for students working on seminar papers, qualifying papers, theses, and dissertation proposals in language and literacy studies. (F,SP) Staff

Section 1: Recommended for Ed.D. students and M.A. students working on curriculum projects.

Section 2: Recommended for Ph.D. students and M.A. students working on research projects. Staff

294E. Thesis Seminar. (1-4) Course may be repeated for credit. Three hours of discussion per unit per week. Prerequisites: Good standing in the LEEP, Formerly Educational Psychology 294. Recommended for M.A. students working on seminar papers or theses, and doctoral students preparing dissertation proposals. (F,SP) Staff

295B. Technology, Curriculum, and Instruction. (3) Three hours of seminar per week. Formerly Education in Mathematics, Science, and Technology 291B. To explore the cognitive consequences of technology in instruction and learning, the promise of technology in education will be examined, and exemplary instructional materials will be examined. Course work will be related to knowledge acquisition and knowledge change incorporating technological delivery of instruction will be developed. Linn

295C. Integrating Technology into Secondary English Instruction. (4) Three and one-half hours of
lecure and one-half hour of laboratory per week. Pre-

requisites: Admission into the MUSE Credential/ MA Program. This course will cover: (a) basic skills in using computer hardware and software; (b) knowl-
edge of the legal and ethical issues surrounding the use of computers in classroom instruction; (c) com-
municating through a variety of electronic media; (d) designing and developing learning lessons to promote content area information literacy for lifelong learning; (e) optimiz-
ing lessons based upon the technological resources available in the classroom or school setting; (f) con-
tributing to planning the use of technological resources in the school setting. (SP) Staff

298A. Group Study for Graduate Students—POME. (1-5) Course may be repeated for credit. One to five hours of lecture/seminar per week. One hour of lecture per week per unit. Must be taken on a satisfactory/unsatis-
factory basis. Research on special problems and topics not covered by regular courses or sem-
inars. Topics will vary in different semesters. Staff

298B. Group Study for Graduate Students—L.L.S.C. (1-3) One hour of lecture/seminar per week per unit. Section 1 to be graded on a letter-grade basis. All other sections to be graded on a satisfactory/unsatis-
factory basis. Prerequisites: Consent of instructor. Formerly Education in Language and Literacy 298. Research on special problems and topics not cov-
ered by courses or seminars. (SP) Staff

298C. Group Studies, Seminars, or Group Research—DCEMST. (1-4) One to four hours of lecture/seminar per week. Formerly Education in Mathematics, Science, and Technology 298. Advanced group study in education. Topics vary from semester to semester. May consist of organized lectures or seminar discus-
sions, related chiefly to the research area in which the group is working. (F,SP) Staff

298D. Group Study for Graduate Students—SCS. (1-3) One to three hours of lecture/seminar per week. Formerly Education in Cultural Studies in Education 298D. Research on special problems and topics not covered by courses or seminars. Staff

298E. Group Study and Research. (1-6) One to six hours of seminar per week. Must be taken on a satisf-
factory/unsatisfactory basis. Formerly Educational Psychology 298. Group study and research on special problems and topics. (F,SP) Staff

299. Special Study and Research. (1-12) Course may be repeated for credit. Individual conference and independent study. Must be taken on a satisfactory/unsatis-
factory basis. Prerequisites: Consent of instruc-
tor. Special study or research under direction of a faculty member. One unit of credit for every four hours of conference and independent research time per week. Staff

601. Individual Study for Master’s Students. (1-4) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence require-
ments for master’s degree. Must be taken on a satis-
factory/unsatisfactory basis. Prerequisites: Consent of instruc-
tor. Individual study for the master’s exami-
nation in consultation with a faculty adviser. One unit of credit for each four hours of conference and inde-
pendent research per week. Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence require-
ments for doctoral degree. Individual conference and independent study. Must be taken on a satisf-
factory/unsatisfactory basis. Prerequisites: Consent of instruc-
tor. Individual study in preparation for the doctoral qualifying examination. One unit of credit for each four hours of conference and independent research per week. Staff

Professional Courses

380. Teaching Assistants Practicum. (1-6) Course may be repeated for credit. One half-hour lecture, one ¾-hour discussion and one hour fieldwork per unit per week. Must be taken on a satisfactory/unsatis-
factory basis. Consultation and analysis for teaching assistants. Staff

390A-390B. Supervised Teaching for Secondary English. (7-8) Prerequisites: Admission to a teaching credential program. Twenty-four to 28 hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Sequence begins with the fall semester. Cziko

390C. Supervised Teaching in Elementary Education. (1-8) Course may be repeated for credit. One to three hours of lecture and two to 20 hours of field-
work per week. Prerequisites: Admission to a teaching credential program. Formerly Educational Psychology 390. Fieldwork for teaching credential. Sup-
vised teaching may begin with the opening of the public schools in the fall and extend through the spring semester. Peretti

390D. Supervised Teaching in Mathematics and Science for Secondary Schools. (2-6) Course may be repeated for credit. Two hours of lecture and two to ten hours of fieldwork per week. Prerequisites: Admission to a teaching credential program. Formerly Education in Mathematics, Science, and Technology 390. Fieldwork for teaching credential. Supervised teaching may begin with the opening of the public schools in the fall and extend through the spring semester. Zimmerman

391A. Technology, Curriculum, and Instruction, (1) One hour of seminar and two hours of laboratory per week. Prerequisites: Admission to the Develop-
mental Teacher Education Program. Meets level 1 technology for the California Multiple Subject Credential. Introduction to basic computer skills and appli-
cations. (F) Peretti

391B. Technology, Curriculum, and Instruction II. (1) One hour of seminar and two hours of laboratory per week. Prerequisites: 391A. Part 2 of a 2-part sequence meeting meeting requirements for the Cali-
fornia Multiple Subject Credential. This second part will focus on application and extensions of classroom technology. (SP) Levenson, Peretti

392C. Arts in the Elementary Classroom. (1) One hour of seminar and two hours of laboratory per week. Prerequisites: 391A. Part 2 of a 2-part sequence meeting meeting requirements for the Cali-
fornia Multiple Subject Credential. (F) Peretti

393. Preparation for Completion of theElemen-
tary Mathematics Performance Based Assessment (1) One and one-half hours of lecture and two hours of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Completion of required first year coursework and field placements in the Developmental Teacher Education Program. This course is designed to support candidates as they prepare for and complete the Elementary Mathemat-
ics Performance Assessment for CA teachers (PACT). The PACT is required for all credential candidates prior to recommendation for credentialing as design-
ated by the state of California. Candidates will be-
come familiar with the requirements for the PACT, begin planning lessons, develop a lesson plan, view, share, and critique “work in progress,” read and respond to rele-
vant articles, review guidelines for preparing video records of teaching practice, and design scoring criteria for assessing student work. (F,SP) Staff

413A-413B. Community-Based Internship in School Psychology. (3-3) Course may be repeated for credit. Two hours of lecture/discussion and one day of fieldwork per week. Supervised assignment to a community mental health agency in the capacity of school psychologist. Staff

413L. Consultation for School Psychology Stu-
dents. (1) Course may be repeated for credit. One hour consultation on campus and six hours of field-
work per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Must be taken concurrently with 213C-213D and 413C-413D. Staff

460A. Practicum in School Site Management I. (3) Three hours of lecture and fieldwork per week. Pre-
requisites: Admission to Administrative Services Credential program. Supervised field experience, con-
fereces, and colloquium. Staff

460B. Practicum in School Site Management. (1,2) Course may be repeated for credit. Three to six hours of work per week. Prerequisites: 460B. Sup-
vized field experience, conferences, and colloquium. (SP) Hernandez

460C. Research Practicum in Administration, (2) One hour of lecture and three hours of fieldwork per week. Prerequisites: 294A and admission to the Princip-
al Leadership Institute. This course engages mas-
er’s students in collecting and analyzing data on efforts to improve educational practices or solve impor-
tant problems in school systems. Tredway

460L. Field-Based Practicum: Internship in Edu-
cational Administration II-I-4. (2) Six hours of field work per week and one three hour seminar will be scheduled during each semester. Must be taken on a satisf-
sfactory/unsatisfactory basis. Research on special problems and topics not covered by courses or seminars. Staff

470A. Residency in Systemic Educational Reform. (3) Course may be repeated for credit. One hour of seminar per week, plus six hours of residency in a local school district and two hours of individual research preparation for a case study. Prerequisites: 277A and good standing in the Joint Doctoral Pro-
gram. Supervised field based practicum and semiar for students working toward the Professional Admin-
istrative Services Credential. Research based field experiences and fieldwork will address the issues in the program. Students will be expected to present the results of their residency research to the faculty and students of the Joint Doctoral Program. (F) Staff

470B. Residency in Curriculum, Instruction, Assess-
ment, and Professional Development. (3) Course may be repeated for credit. One hour of seminar per week, plus six hours of residency in a local school district and two hours of individual research preparation. Prerequisites: 290E and good standing in the Joint Doctoral Program. Students will meet weekly for one hour with a residency adviser at one of the following campuses: San Francisco State University; California State Uni-
versity, East Bay; or San Jose State University. The resideny will require six hours weekly at a school district site to conduct research on systemic educa-
tional reform topics selected by students in conjunction with their faculty counselors and residency advisers in collaboration with the district consultant. An additional two hours weekly will be dedicated to preparation of case study materials from the residency assignment. Students will be expected to present the results of their residency research to the faculty and students of the Joint Doctoral Program. (F) Staff

470C. Residency in Budget. (3) Course may be repeated for credit. One hour of seminar per week, plus six hours of residency in a local school district and two hours of individual research preparation. Prerequisites: 290E and good standing in the Joint Doc-
toral Program. Students will meet weekly for one hour with a residency adviser at one of the following cam-


Electrical Engineering and Computer Sciences (College of Engineering)

Department Office: 231 Cory Hall #1770, (510) 642-3214 eecs.berkeley.edu
Chair: Stuart Russell, Ph.D.
Associate Chair: Costas J. Spanos, Ph.D. 

Professors

Venkatesh Babu, Ph.D. University of California, Berkeley. Systems and control
Charles K. Birdwell, Ph.D. Stanford University. Plasma physics
Jeffrey C. Bruck, Ph.D. Massachusetts Institute of Technology. Computer science theory
S. Shankar Sastry, Ph.D. University of California, Berkeley. Control, intelligent systems, robotics, control
Jerome R. Singer, Ph.D. University of California, Berkeley. Control, intelligent systems, robotics, control
Wayne E. Wolf, Ph.D. University of California, Berkeley. Control, intelligent systems, robotics, control

Associate Professors

Wenwu Zhu, Ph.D. University of Arizona. Signal processing
Xiaoran Wang, Ph.D. University of Arizona. Signal processing
Xiaotong Song, Ph.D. University of Arizona. Signal processing

Affiliated Professors

David Atienza (In Residence), Ph.D.
Seth A. Friedler (In Residence), Ph.D.
Seth A. Friedler (In Residence), Ph.D.
Thomas A. Henzinger (In Residence), Ph.D.
Ivan Kamarov (Adjunct), Ph.D.
Andrew Kuettmann (Adjunct), Dr.-Ing. habil.
Nelson Morgan (In Residence), Ph.D.
Bhuvana Ramaratnam, Ph.D.
Abhay Parekh (Adjunct), Ph.D.
Martin Vetterli (Adjunct), Distinguished Es
Adam Wolisz (Adjunct), Dr. habil.
Jerrold E. Marsden (Emeritus), Ph.D.

Computer Science (Engineering)

Computer Science Division Office: 387 Soda Hall, (510) 642-1042 cs.berkeley.edu
University Professor

Henry M. Karp (The Class of 1939 Professor Emeritus), Ph.D.

Professors

Ruzena Bajcsy, Ph.D. Stanford University. Computer vision, robotics
Brian Barsky, Ph.D. University of Utah. Graphics, visualization in scientific computing
Peter Bartlett, Ph.D. Australian National University. Statistical learning theory
Eric A. Brewer, Ph.D. Massachusetts Institute of Technology. Parallel software systems
John F. Carney (The Robert S. Pepper Distinguished Professor), Ph.D.
Massachusetts Institute of Technology. Human-computer interaction
David Culler, Ph.D. Distinguished Chair in Engineering, Ph.D. Massachusetts Institute of Technology. Parallel computation, computer architecture and engineering
James W. Demmel, Ph.D. Distinguished Professor in the College of Engineering), Ph.D. University of California, Berkeley. Mathematical science theory, hybrid and embedded systems, biological cell dynamics
Michael Franklin, Ph.D. University of Wisconsin. Database management, distributed systems
Kenneth Goldberg, Ph.D. Carnegie Mellon University. Robotics and geometric algorithms
Susan L. Graham, Ph.D. Stanford University. Programming languages
Joseph M. Hellerstein, Ph.D. University of Wisconsin. Design of database management systems
Michael Jordan (The Feingold Chen Distinguished Professor in Electrical Engineering and Computer Sciences), Ph.D. University of California, Berkeley. Statistical machine learning, artificial intelligence, computational biology
Paisley K. K. (The Katz (The Katz) Professor), Ph.D. University of California, Berkeley. Verifiable and distributed systems
Seth R. Sanders, Ph.D. Massachusetts Institute of Technology. Theoretical computer science
Stuart Russell (Chair and Professor), Ph.D.
Shafi Goldwasser (Adjunct), Ph.D.
Scott Shenker, Ph.D. Stanford University. Internet architecture, operating systems, game theory
Atul Srivastava, Ph.D. University of Edinburgh. Computer science theory
Ajan J. Smith, Ph.D. Stanford University. Operating systems, computer performance analysis
Bernd Sturmfels, Ph.D. University of Washington. Combinatorics, computational biology, theory
Doug Tygar, Ph.D. Harvard University. Computer security, privacy, and electronic voting
Umesh V. Vazirani (The Roger A. Strauch Chair in Electrical Engineering and Computer Sciences), Ph.D. University of California, Berkeley. Complexity theory, cryptography
John C. Wawrzynek, Ph.D. Stanford University. Computer Science. Parallel computation, computer architecture and engineering
Katherine Yelick, Ph.D. Massachusetts Institute of Technology. Programming systems, programming techniques
Eylon R. Berkamp (Emeritus), Ph.D.
Harry Blum (Emeritus), Ph.D.
Richard J. Fateman (Emeritus), Ph.D.
Jerome A. Feldman (Emeritus), Ph.D.
Domenico Ferrari (Emeritus), Ph.D.
Arthur Gill (Emeritus), Ph.D.
Michael A. Harrison (Emeritus), Ph.D.
William Kahan (Emeritus), Ph.D.
Berndt F. Nordstrom (Emeritus), Ph.D.
Chitothi V. Ramamurthy (Emeritus), Ph.D.
Lawrence A. Rowe (Emeritus), Ph.D.
Michael R. Stonebraker (Emeritus), Ph.D.
Robert J. Wilensky (Emeritus), Ph.D.
Lotfi A. Zadeh (Emeritus), Ph.D.
Faculty members at Berkeley are committed to research and discovery at the highest level, informed and creative teaching, and the creative desire to extend the frontiers of EECS. Faculty has been recognized in a long list of prestigious honors and awards, including two National Medals of Science, three ACM Turing Awards, three IEEE Medals of Honor, the National Academy of Engineering, seven members of the National Academy of Sciences, 14 fellows of the American Academy of Arts and Sciences, etc.

Unlike many institutions of similar stature, regular faculty teaches the vast majority of our courses, and the exceptional teachers are often also the most exceptional researchers. The department’s list of active teaching faculty includes seven winners of the prestigious Berkeley Campus Distinguished Teaching Award.

The mission of the Department of Electrical Engineering and Computer Sciences has three parts:

1. Educating future leaders in academia, government, industry, and entrepreneurial pursuit, through a rigorous curriculum of theory and application that develops the ability to solve problems, individually and in teams.
2. Creating knowledge of fundamental principles and innovative research within the core areas of EECS and in collaboration with other disciplines, that is distinguished by its impact on academia, industry and society; and
3. Serving the communities to which we belong, at local, national, and international levels, with a deep awareness of the ethical responsibilities to our profession and to society.

Our strategy to accomplish these missions is simple: recruit and retain the very best faculty, students, and staff, and then empower them to directly drive the creation and dissemination of knowledge.

We know that we have succeeded in this mission when our students succeed, becoming leaders and serving society.

Electrical Engineering began on the Berkeley campus more than a century ago, with the hiring of the first electrical engineer, Clarence Cory, into the College of Mechanics. The early days focused on electric power production and distribution, and the College of Mechanics. The early days focused on electric power production and distribution, and the College of Mechanics.

The early days focused on electric power production and distribution, and the College of Mechanics.

We know that we have succeeded in this mission when our students succeed, becoming leaders and serving society. Our graduate programs emphasize research, preparing students for leadership positions in industrial labs, government, or academia. Our faculty and computing facilities are among the best anywhere, and have conceived many transformative inventions. Our research programs are well funded, and nearly all of our graduate students receive full financial support.

See the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study at cee.berkeley.edu/college-of-engineering-announcement for more information.

Undergraduate Programs

Under the auspices of the College of Engineering, EECS offers two undergraduate programs: Electrical and Computer Engineering (ECE) and Computer Science and Engineering (CSE). The CSE program puts a greater emphasis on computer science, whereas the ECE program puts a greater emphasis on electrical engineering. Both programs require the same set of five lower-division core courses in ECEs (EE 20N, EE40, CS 61A, CS 61B, and CS61C) and nearly the same math and science courses. After satisfying program requirements at the lower-division level, students are free to choose from a variety of electives upper-division courses. To guide students into a coherent choice of courses, we ask students to choose from one of five ‘options.’ The choice of option affects the assignment of a faculty adviser, and the options provide sample programs that suggest reasonable tracks.

The options are:

• Physical Electronics (Option 1): For students interested in integrated circuits, electronic devices, nanotechnology, electromagnetics, and micro and nano fabrication, photonics, plasmonics, micro-electromechanical systems (MEMS), electronic design automation (EDA), high power circuits, and applications to biomedicine, micro-robotics, sensors, optical systems, energy storage, and silicon structures.

• Communication, Networks, and Systems (Option II): For students interested in networks, control systems, digital and analog communications, information theory, signal processing, and systems modeling, design, verification, and optimization, together with applications to robotics, biomedicine, wireless communications systems, multimedia systems, multi-sensor fusion, and distributed systems.

• Computer Systems (Option III): For students interested in machine architecture and logic design, communication networks, computer security, operating systems, database systems, programming languages and systems, computer games, and information systems.

• Computer Science (Option IV): For students interested in the foundations of computing, which includes the theory of computation, the design and analysis of algorithms, complexity theory, the architecture and logic design of computers, programming languages, compilers, operating systems, scientific computation, computer graphics, data...
base systems, artificial intelligence and natural language processing, and cryptography and computer security.

- General Course of Study (Option V): Enables students whose interests are broad or who have yet to focus on a specific field to explore several topics in the areas mentioned above.

Students in the ECE program typically select options I, II, III, or V, whereas students in the CSE program typically select options III or IV. Students are not obligated to follow any of these options precisely, but are free to plan an individual program to suit their special needs or interests, subject to meeting the requirements detailed below.

Diplomas received by students in both the ECE and CSE program state that the students received a Bachelor of Science from the University of California, Berkeley College of Engineering. The diploma does not indicate the option or the ECE or CSE program. The student's transcript indicates whether the program was ECE or CSE.

Curriculum and Requirements for the Bachelor's Degree

Students must complete a minimum of 120 units, in which they must satisfy the University of California's major, course requirements and academic concentration on the side of EECS. In addition, students must complete the requirements for the College of Engineering. Full details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at eecs.berkeley.edu/college-of-engineering-announcement and the "EECS Undergraduate Notes" at eecs.berkeley.edu/Programs/Notes. Please also see the "Options" section in the "EECS Undergraduate Notes" for suggested programs of study.

EECS Honors Degree Program

The Honors Degree Program is designed to provide very talented undergraduate students with more flexibility at the undergraduate level. Honors students select an academic concentration outside of EECS. In addition, students receive a special faculty adviser, engage in research, receive official notation of the honors degree on their Berkeley transcript, and are invited to special events both fully and EECS Honors alumni.

For more information, read about the Honors Degree Program at eecs.berkeley.edu/Programs/honors.html.

Joint Major Programs

The joint major programs are designed to qualify students for employment in either of two major fields of engineering, or for positions where competence in both fields is required. Both majors are listed on the student's transcript. Two such majors are currently established:

- EECS/Materials Science and Engineering: For students interested in materials and devices. The program combines the study of materials from a broad perspective, as taught in MSE, with the study of more traditional topics in electronic devices and circuits, as taught in EECS. Students selecting this double major have two faculty advisers, one from each major.

- EECS/Nuclear Engineering: Combines the traditional EE program with that in Nuclear Engineering. Students need to share a concern for electrical power generation, automatic control, computer sciences, and plasmas. Students selecting this double major have two faculty advisers, one from each major.

Computer Science Leading to the Bachelor of Arts Degree

In addition to a CS major through the College of Engineering, which confers the B.S. degree, the Computer Science Division also offers the major through the College of Letters and Science, which confers the B.A. degree. An essential difference between the two majors is that the EECS program requires a greater number of math and science courses than the CS program, which requires a greater number of non-technical, or breadth, courses. The computer science major under L&S is not accredited. For further information about L&S computer science programs and requirements, see eecs.berkeley.edu/csgrad.

Details about the computer science major offered through the College of Letters and Science also may be found under the listings for "Computing Science" in this catalog.

Computing Service Courses

Students may earn a total of at most 5 units of credit toward graduation for courses labeled as "computing service" courses, which include CS 3, 3L, 3S, the CS 9 courses, and Engineering 110. Students will receive no more than 1 unit of credit for each of these courses taken after the first or after any of the CS 61 courses. Any units beyond these limits will not count toward graduation, although they will count for the sole purpose of determining whether the study list falls within the minimum and maximum unit loads.

Course Materials Fee

The Department of Electrical Engineering and Computer Sciences charges a course materials fee for Electrical Engineering 143. The amount of the fee is listed in the online Schedule of Classes.

Advanced Degree Programs

The Five-Year Bachelor/Master's Program in EECS (B.A./M.S. or B.S./M.S.): The combined Bachelor/Master's Program is designed to take outstanding EECS and CS L&S undergraduates immediately into an intensive two-semester program conferring the Bachelor of Science degree. This combined program promotes interdisciplinary focus and is best suited to those who are more "professionally oriented," as opposed to those wishing to follow a more traditional research-based, and discipline-specialized advanced course of study. As such, a distinguishing feature of this five-year program is its emphasis upon extended study in interdisciplinary technical areas, including allied technical fields, such as physics, biology, and statistics, or in professional disciplines, such as business, law, or public policy. The program is aptly entitled, "Edu-

Graduate Programs

The EECS Graduate Program offers a comprehensive program geared toward research and teaching (Master of Science and Doctor of Philo-

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H prefix=course satisfies R&C requirement

R prefix=course satisfies R&C requirement

AC suffix=course satisfies American Cultures requirement

*Professor of the Graduate School

\( \text{Distinguished Teaching Award} \)
• Integrated Circuits: Includes applications (analog-to-digital and digital-to-analog conversion, automotive electronics, biosystems, computer, consumer electronics, instrumentation, medical systems, signal processing, ubiquitous electronics, and wireless communications), circuit design (high-speed digital and high-frequency analog circuits, microprocessors, memories, and analog circuits, precision measurement, timing, voltages and currents, robust circuit design, and system architecture), devices and technology (bio/silicon interfaces, integrated sensors, mixed signal systems, mixed material systems, and microelectromechanical systems), and energy management (high-power circuits, on-chip power distribution, power/performance tradeoffs, ultra-low-power, and low-voltage circuits).

• Physical Electronics: Includes electromagnetics (high frequency integrated circuit design, simulation, waveguides, and wireless channels), electronic devices (integrated circuit devices, organic electronics, semiconductor technologies, and superconductive devices), micro/nanofabrication (fabrication technologies for semiconductor, electromechanical, photonics, and other micrometer and nanometer-scale systems, advanced processing modules, integration of heterogeneous systems, process modeling and simulation, lithography, and advanced metrology and manufacturing systems), nanoscale systems (nanotubular, nanowires, molecular-scale structures, quantum dots, and one-electron devices), and optics (lasers, light emitting diodes, optical detectors, optical tweezers, optical communication, and solar cells).

• Signal Processing: Includes theory and algorithms (acoustic coding, machine learning, and signal modeling; indexing, searching, and retrieval; multirate and multi-channel processing; restoration and enhancement; signal analysis, identification, spectral estimation, and understanding; signal representation, compression, coding, quantization and sampling; statistical signal processing, detection, estimation, and classification; watermarking, encryption, and data hiding; wavelets, filter banks, time frequency techniques, signal processing applications (audio, speech, image, and video processing; graphics; biological and biomedical signals; computer vision; radar and lidar systems; synthetic and astronomical signals), signal processing systems (VLSI architectures; embedded and real-time software; capture, acquisition, and sensing; sensor networks; power efficiency, and auditory enhancement).

Students whose principal interests are in the following areas should apply to Computer Science:

• Artificial Intelligence: Includes knowledge representation and reasoning (logical and probabilistic formalisms and combinations thereof), machine learning and probabilistic inference (graphical models and statistical and computational learning theory), decision making (problem solving search, planning, games, Markov decision processes, and reinforcement learning), search and information retrieval (database, information extraction, image and video search, intelligent information systems), speech and natural language processing (parsing, machine translation, information extraction, speech recognition, computer vision, and robotics).

• Computer Architecture and Engineering: Includes processor and system design (multicore, parallel, and cluster computing architectures), domain-specific architectures, reconfigurable computing, multimedia and graphics, computer graphics (theoretical analysis, simulation, and emulation hardware, low-power design, VLSI implementation, compiler technology, network interfaces, storage systems, and quantum computing architectures).

• Database Management Systems: Includes scalable techniques for data acquisition (sensor timestamping, data integration and cleaning (federated data sources, deep web, structure induction, anomaly detection), query processing and search (structured data, text and web repositories, personal information, data streams), distributed and parallel data management (cluster computing, peer-to-peer software, wireless sensor networks and RFID), storage (transaction management, indexing, stream archiving), inference and learning (probabilistic databases, data mining and privacy), (verifiable and privacy-preserving multiparty query execution), declarative data-intensive systems (declarative networking, sensor tasking, inference), data distribution, power/performance tradeoffs, ultra-low-power, and low-voltage circuits).

• Graphics: Includes geometric modeling (splines, subdivision surfaces, rapid prototyping, operating system design, and animation), and hardware acceleration, and software optimization, (query optimization, indexability, stream algorithms).

• Operating Systems and Networking: Includes internet architecture (overlay architectures, distributed hashing, naming, next generation network design, peer to peer networking, mobile and ad-hoc networking), security (malware detection, authentication and authorization, distributed systems (experimental testbeds, distributed logging, distributed software systems, monitoring), software systems (dynamization, fluid simulation, game video), imaging (computational photography and video, texture synthesis, appearance acquisition).

• Human-Computer Interaction: Includes visualization (multivariate data visualization, interactive visualization, (graphical perception, collaborative analysis), context-aware computing (activity analysis, smart spaces, location-aware systems, privacy technologies), perceptual interfaces (vision-based interfaces, speech and discourse interfaces), and collaboration and learning (pattern-based authoring tools, English as a second language learning, group collaboration technologies).

• Programming Systems: Includes programming language design and implementation (compiler optimization, semantics), programming environment and tools (monitoring, debugging), program analysis and verification (model checking, static analysis, theorem proving), and software design and synthesis (software design for parallel computing, embedded systems, numerical computing, symbolic computing, and distributed computing).

• Scientific Computing: Includes parallel computing (parallel high speed libraries, architectures), computer algebra (symbolic mathematical computation), mesh generation, matrix computing (linear algebra), image processing, computing algorithms for memory and cache optimization for numerical linear algebra, grid based computing, extended precision arithmetic, redundant arithmetics), numerical methods (extreme precision floating-point arithmetic, and non-Newton-based algorithms), and simulation and visualization of physical processes.

• Security and Privacy: Spans the development of mechanisms and systems designed for operation in the presence of adversaries who either seek to subvert the correct operation of the system, misuse its capabilities, or unduly extract information from it. Includes security and privacy in the context of software, languages, operating systems, networking, distributed (mobile/embedded) systems, malicious analysis and defense, usability, human factors, anonymity, threat evolution, economic and legal issues, and cryptography.

• Theory: Includes computational complexity (intractability, complexity classes, completeness, approximability, randomness), parallel and distributed computation, design and analysis of algorithms (including Monte Carlo algorithms, optimization algorithms, quantum computation, computational learning theory, computational geometry, biocomputational biology, cryptography, and logic and concurrency theory).

Students with interests in the following areas can apply to either division:

• Biosystems: Includes systems neuroscience (sensory motor control, vision, audition, biomimetics, brain-machine interfaces, and computational neuroscience), biomedical systems (sensors, healthcare systems, physiological modeling, medical imaging and bioimage analysis), cellular systems (protein science, modeling; gene regulatory networks; synthetic biological systems; cellular signaling pathways, transport, and metabolism; and self-assembling systems), and bioinformatics (comparative genomics, genetic analysis, bioinformatics, and molecular evolutionary modeling, and gene regulatory networks).

With the exception of those in the Five-Year Bachelor’s/Master’s Program, most who enter the graduate program do so with the expectation of pursuing their doctorates. The department does, however, accept “M.S. Only” students and offers three types of degrees, discussed below.

Master of Science (M.S.)

The department awards two types of Master of Science degrees in:

• Engineering—EECS: For EE students with a B.S. degree from an accredited engineering program, or for those who have the equivalent of a B.S. degree as determined by the department.

• Computer Science: For CS students with a B.S. degree as determined by the department.

Students may choose to pursue Plan I, which requires writing a thesis, or they may pursue Plan II, which requires a report on a project. In either case, earning the Master of Science degree usually takes from 1.5 to 2 years to achieve.

Doctor of Philosophy (Ph.D.)

The department offers two types of Ph.D. degrees, awarded to students under the same conditions as the corresponding M.S. degrees, above:

• Engineering—EECS

• Computer Science

The principal requirements for the Ph.D. are:

(1) coursework from a major subject area and two minor subject areas;
(2) the departmental preliminary requirement, consisting of an oral exam and breadth courses, which differ for EE and CS;
(3) the qualifying exam; and
(4) the dissertation.

There is no foreign language requirement. The minimum time for completion for the Ph.D. is 5.5 years.

For further information on establishing major and minor subject areas, division-specific requirements for prelims and breadth requirements, qualifying exam, and the dissertation, please refer to the
Graduate Handbook prepared by the Graduate Admissions Office at eecs.berkeley.edu/Gradnotes for more information.

Designated Emphasis: In keeping with the departmental priority given to cross-disciplinary applications of engineering and computer science, graduates may also choose to add a designated emphasis to their program. A designated emphasis is a specialization offered by existing Ph.D. programs that grant unique multi-disciplinary training and research opportunities outside of EECS proper, but in areas that share overlapping interests and goals. At present, five such designated emphases are available to our doctoral students in:

- Communication, Computation and Statistics
- Computational and Genomic Biology
- Computational Science and Engineering
- Nanoscale Science and Engineering
- New Media

Students who pursue a DE receive recognition of their specialization on their transcripts and are well positioned to compete for preferred jobs in academia and industry.

The Management of Technology (MOT) Certificate Program: This program is a joint effort between the College of Engineering, the Haas School of Business, and the School of Information (SI) at UC Berkeley. The program focuses on the development of managerial and leadership activities and brings high-tech products to market. It is the most popular interdisciplinary program at UCB, with classes and fellowship programs made up of roughly an equal number of engineers, MBAs, and SI and EECS M.S. and Ph.D. students. The MOT Certificate Program allows graduate students to specialize in the Management of Technology as they obtain their degrees.

Electrical Engineering

Lower Division Courses

20N. Structure and Interpretation of Systems and Signals. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Mathematics 1B. Mathematical modeling of signals and systems. Continuous and discrete-time signals, with applications to audio, images, video, communications, and control. State-based models, beginning with automata and evolving to LTI systems. Frequency domain models for common elements. Fourier transform and applications; Laplace transforms and systems. Stochastic signals and processes. Linear filters. (SI) at UC Berkeley. The program focuses on the development of managerial and leadership activities and brings high-tech products to market. It is the most popular interdisciplinary program at UCB, with classes and fellowship programs made up of roughly an equal number of engineers, MBAs, and SI and EECS M.S. and Ph.D. students. The MOT Certificate Program allows graduate students to specialize in the Management of Technology as they obtain their degrees.

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123. Digital Signal Processing. (4) Three hours of lecture, one hour of discussion, and one hour of laboratory per week. Prerequisites: 120. Discrete time signals and systems: Fourier and Z transforms, DFT, two-dimensional digital signal processing. Topics: flow graphs, realizations, FFT, chirp-Z algorithms, Hilbert transform relations, quantization effects, linear prediction. Digital filter design methods: windowing, K-condition sampling, S-to-Z transformation. (F,SP) Staff

125. Introduction to Robotics. (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 20 or equivalent, consent of instructor and focus on the kinematic, dynamic, and control of robot manipulators, robotic vision, and sensing. The course covers forward and inverse kinematics of serial chain manipulators, the manipulator redundancy, dynamic, and control. It presents elementary principles on proximity, tactile, and force sensing, vision sensors, camera calibration, stereo construction, and motion detection. The course concludes with current applications of robotics in active perception, medical robotics, and other areas. Also listed as Bioengineering C125. (F) Staff


127A. Optimization Models in Engineering. (3) Three hours of lecture per week. Optimization models in engineering. Linear, quadratic convex, and second-order cone optimization. Applications in engineering, circuit design, signal processing, finance, operations research, etc. (F,SP) Staff

128. Feedback Control. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 120. Analysis and synthesis of continuous and sampled-data linear feedback control systems. Advanced topics in feedback design. Robustness of control systems. (F,SP) Staff

129. Neural and Nonlinear Information Processing. (3) Three hours of lecture per week. Prerequisites: 128 and 129. Introduction. Principles of massively parallel real-time computation, optimization, and information processing via nonlinear dynamics and analog VLSI neural networks, applications selected from image processing, pattern recognition, feature extraction, motion detection, data compression, secure communication, bionic eye, auto waves, and Turing patterns. (SP) Chua

130. Integrated-Circuit Devices. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 40 or 100. Overview of electronic properties of semiconductor. Metal-semiconductor contacts, pn junctions, bipolar transistors, and MOS field-effect transistors. Properties that are significant to device operation. Surface effects and device technology. (F,SP) Staff

140. Linear Integrated Circuits. (4) Three hours of lecture, one hour of discussion, and two hours of laboratory per week. Prerequisites: 105. Single and multistage amplifiers. Operational amplifiers. Feedback amplifiers, two-port formulation, source, load, and feedback network loading. Frequency response of cascaded amplifiers, gain-bandwidth limitations, feedback networks, root locus. Supply and temperature independent biasing and references. Selected applications of analog circuits such as analog-to-digital converters, switched capacitor, and operational amplifiers. The laboratory builds on the concepts presented in the lectures and provides hands-on design experience and help with the use of computer-aided design tools, such as SPICE. (F,SP) Staff

141. Introduction to Digital Integrated Circuits. (4) Three hours of lecture, and three hours of laboratory per week. Prerequisites: 40; 105 and 150 recommended. CMOS devices and deep sub-micron manufacturing technology. CMOS inverter and complex gates. Modeling of integrated circuits. Optimal design of integrated circuits with respect to a number of metrics: cost, reliability, performance, and power dissipation. Sequential circuits, timing considerations, and clocking methodologies. (F,SP) Alon, Rabaei

142. Integrated Circuits for Communications. (4) Three hours of lecture, and three hours of laboratory per week. Prerequisites: 40 and 78B. Integrated circuit device fabrication and surface micromachining technology. RF IC design. Integrated circuits for communication systems. Analysis of noise and distortion in amplifiers with application to radio receiver design. Power amplifier design with application to wireless radio transmitters. Radio-frequency mixers, oscillators, phase-locked loops, modulators, and demodulators. (F,SP) Staff

143. Microfabrication Technology. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 40 and 78B. Integrated circuit device fabrication and surface micromachining technology. RF IC design. Integrated circuits for communication systems. Analysis of noise and distortion in amplifiers with application to radio receiver design. Power amplifier design with application to wireless radio transmitters. Radio-frequency mixers, oscillators, phase-locked loops, modulators, and demodulators. (F,SP) Staff

144. Introduction to Computer-Aided Design of Integrated Circuits. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 40; 100 or 150 recommended. This course presents principles explored in the laboratory exercises and design of microfabricated sensors and actuators. Topics to be covered include layout, routing, timing analysis, synthesis, verification, and testing. (SP) Keutzer, Seshia

145B. Image Processing and Reconstruction Tomography. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 120; basic programming ability in C or FORTRAN. Linear systems and Fourier transforms in two and three dimensions. Basic image processing. Theory and algorithms for image reconstruction from projections. Physics of imaging systems including magnetic resonance, X-ray tomography, positron emission tomography, ultrasound, and biodynamic data analysis including hypothesis testing, parameter estimation by least squares, and compartmental kinetic modelling. Field trips to medical imaging laboratories. Also listed as Bioengineering C145B. (SP) Keutzer, Seshia

145L. Introductory Electronic Transducers Laboratory. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 40. Laboratory exercises utilizing 20–100 line C programs for data acquisition, storage, analysis, display, and control. Use of the IBM PC with microprogrammable digital counter/timer, parallel I/O port, and analog I/O port. Design of basic waveforms, the use of the Hanning filter for leakage reduction, Fourier analysis of the human voice, digital filters, and control using Fourier deconvolution. Lectures cover principles explored in the laboratory exercises and design of microcomputer-based systems for data acquisitions, analysis, and control. Also listed as Bioengineering C145M. (SP) Derenzo

145M. Introductory Microcomputer Interfacing Laboratory. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 40, Computer Science 61B or a working knowledge of ANSI C programming. Introduction to computer-aided design of circuits constructing basic interfacing circuits and writing 20–100 line C programs for data acquisition, storage, analysis, display, and control. Use of the IBM PC with microprogrammable digital counter/timer, parallel I/O port. Circuit components include anti-aliasing filters, the S/H amplifier, A/D and D/A converters. Exercises include effects of aliasing in periodic sampling, fast Fourier transforms of basic waveforms, the use of the Hanning filter for leakage reduction, Fourier analysis of the human voice, digital filters, and control using Fourier deconvolution. Lectures cover principles explored in the laboratory exercises and design of microcomputer-based systems for data acquisitions, analysis, and control. Also listed as Bioengineering C145M. (SP) Derenzo

147. Introduction to Microelectromechanical Systems (MEMS). (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Physics 7B. This senior-level course will introduce undergraduate students to the rapidly expanding, multidisciplinary field of microfabricated systems. It presents the fundamentals of transduction mechanisms, particu- larly as they apply to sensing and transduction. Capacitive, piezoresistive, thermal fundamental will be covered; basic microfluidics will be covered. The course will have a heavy emphasis on multi-domain analysis (i.e., thermal-mechanical, electromagnetic analysis). Armed with these basic concepts, the course will cover design and analysis of microfabricated sensors and actuators using micro- and nanotechniques. Many examples of existing devices and their applications will be reviewed. (F,SP) Mahabirz

149. Introduction to Embedded Systems. (4) Three hours of lecture and one hour of laboratory per week. Prerequisites: 20; Computer Science 61C. Computer Science 70 or Math 55. Formerly 124. This course introduces students to the basics of models, analysis tools, and control for embedded systems operating in real time. Students learn how to combine physical processes with computer models of computation, control, analysis and verification, interfacing with the physical world, mapping to platforms, and distributed embedded systems. The course has a strong emphasis on computer hardware and software with emphasis on a semester-long sequence of projects. Also listed as Computer Science C149. (F,SP) Lee, Seshia, Tomin
192. Mechatronic Design Laboratory. (4) One and one-half hours of lecture and 10 hours of laboratory per week. Prerequisites: 120, Computer Science 61BC. (Fall, Spring.) Study will focus on application of theoretical principles in electrical engineering to control of a small-scale system, such as a mobile robot. Small teams of students will design and build a mechatronic system incorporating sensors, actuators, and intelligence. (SP) Fearing

194. Special Topics. (1-4) Course may be repeated for credit as topic varies. One to four hours of lecture/discussion per week. Prerequisites: Consent of instructor. Open to lower-division engineering and mathematics courses. See the Electrical Engineering Announcements.

C213. Soft X-rays and Extreme Ultraviolet Radiation. (3) Three hours of lecture per week. Prerequisites: 210 or consent of instructor. Application of Maxwell's Equations to the study of waveguides, resonant cavities, optical magnetic waves. Basic concepts of antennas as devices in communication systems. Analysis of wire antennas, arrays of elements, horns, reflector and lens antennas, scattering. The propagation of waves over the Earth and in inhomogeneous and random media. Offered alternate years. (SP) Staff

216. Antennas and Propagation. (3) Three hours of lecture per week. Prerequisites: 210 or consent of instructor. Study of antenna parameters and characteristics. Use of multiple antennas in communication systems. Principles of scattering, diffraction, and polarization. Electric and magnetic field distributions. Study of antennas, arrays of elements, horns, reflector and lens antennas, scattering. Applications to design of digital telephone modems, compact disks, and digital wireless communication systems are illustrated. The concepts are illustrated by a sequence of MATLAB exercises. (F,SP) Staff

217. Microwave Circuits. (3) Three hours of lecture per week. Prerequisites: 117 and 140 or equivalent. Study of microwave circuits and components of high-frequency regime above 1 GHz. Transmission lines and distributed circuit elements; S-parameter design of high-frequency active circuits; computer-aided analysis and design. Emphasis on design of linear amplifiers and power amplifiers. Offered alternate years. (SP) Niknejad

219A. Computer-Aided Verification of Electronic Circuits and Systems. (3) Three hours of lecture per week. Prerequisites: Consent of instructor; a course in linear algebra and on circuits is very useful. Formerly 199A. Study of the various concepts and techniques of correct behavior of complex electronic circuits and systems including algorithms and systems for the detailed simulation of integrated circuits at the transistor level and circuit behavior. May be repeated for credit. Laboratory focuses on design of digital systems and EDA tools. The course will present combinational circuit optimization (two-level and multi-level synthesis), sequential circuit optimization (state encoding, retiming), timing analysis, testing, and logic verification. (F,SP) Staff

219B. Logic Synthesis. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. The course covers the fundamental techniques for the design and analysis of digital circuits. The goal is to provide a detailed understanding of the design of digital systems. The course will be taught in a lecture/lab format. It is intended primarily for graduate students and may be repeated for credit. May be taken by undergraduates with permission of the instructor. (SP) Staff


221A. Linear System Theory. (4) Three hours of lecture and two hours of recitation per week. Prerequisites: 120; Mathematics 110 recommended. Introduction to the theory and practice of formal methods for the design and analysis of systems, with a focus on automated algorithmic techniques. Covers selected topics in computational logic and automata theory, model checking, temporal logic, model checking, and automated theorem proving. Applications in hardware and software verification, analysis of embedded, real-time, and hybrid systems, computer security, synthesis, planning, constraint solving, and other areas will be explored as time permits. Offered alternate years. (F,SP) Seshia

221B. Linear System Theory. (4) Three hours of lecture and two hours of recitation per week. Prerequisites: 117, or Physics 110A, 110B. Formerly 210A-210B. Advanced treatment of classical electromagnetic theory with applications to engineering problems. Boundary value problems in electrostatics. Applications of Maxwell's Equations to the study of waveguides, resonant cavities, optical fiber guides, Gaussian optics, diffraction, scattering, and antennas. (F) Staff

223. Stochastic Systems: Estimation and Control. (3) Three hours of lecture per week. Prerequisites: 226A (which students are encouraged to take concurrently). Study of stochastic processes, random parameters, estimation, system identification. Nonlinear filtering, stochastic control. Adaptive control. (SP) Staff

224A. Digital Communications. (4) Four hours of lecture and one hour of discussion per week. Prerequisites: 120 and 126, or equivalent. Formerly 224. Introduction to the basic numerical solution methods and analysis of modern digital communication systems. Topics include source coding; channel coding; baseband and passband modulation techniques; receiver design; carrier and symbol synchronization; digital communication receiver fundamentals of digital communication system behavior; design of digital telecommunication circuits, compact disks, and digital wireless communication systems are illustrated. The concepts are illustrated by a sequence of MATLAB exercises. (F,SP) Staff

224B. Fundamentals of Wireless Communication. (3) Three hours of lecture per week. Prerequisites: 121, 226A, or equivalent. Introduction of the fundamentals of wireless communication. Modeling of the wireless multipath fading channel and its basic physical parameters. Coherence and noncoherence, diversity techniques; block, convolutional, and trellis coding techniques; multiuser communications and spread spectrum; multi-carrier techniques and FDM; carrier and symbol synchronizations. Applications to design of digital telephone modems, compact disks, and digital wireless communication systems are illustrated. The concepts are illustrated by a sequence of MATLAB exercises. (F,SP) Staff

225. Digital Image Processing. (3) Three hours of lecture per week. Prerequisites: 123, 2D sequences and systems, separable systems, reconstruction slice theorems, reconstruction from projections and partial Fourier information. Advanced techniques in digital signal processing. Stochastic signal processing, parametric techniques, whitening filters, and adaptive filters. Application to speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear predictive coding. (F,SP) Staff

226A. Random Processes in Systems. (3) Three hours of lecture per week. Prerequisites: 123 and 126 or solid background in stochastic processes. Advanced techniques in signal processing. Stochastic signal processing, parametric models, and adaptive filters. Application to spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction. (SP) Tse

227. Digital Signal Processing. (3) Three hours of lecture per week. Prerequisites: 123 and 126 or solid background in stochastic processes. Advanced techniques in signal processing. Stochastic signal processing, parametric models, and adaptive filters. Application to spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction. (SP) Tse

228. Audio Signal Processing in Humans and Machines. (3) Three hours of lecture per week. Prerequisites: 123 or equivalent; Statistics 200A or equivalent; or graduate standing and consent of instructor. Introduction to relevant speech processing and basic of the pattern recognition. Introduction to coding, synthesis, and recognition. Models of speech and music processing and perception. Perceptual and computational speech analysis. Pitch perception and auditory spectral analysis with applications to speech and music. Vocoders and music synthesizers. Statistical speech recognition, including introduction to Hidden Markov Model and Neural Network approaches. (SP) Morgan

229D. Random Processes in Systems. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 120 and Statistics 200A or equivalent. Formerly 226B. Probability, random variables and their

227A. Introduction to Convex Optimization. (4) Three hours of lecture, one hour of discussion, and two hours of laboratory per week. Prerequisites: Mathematics 34 and Statistics 2 or equivalents. Convex optimization is a class of nonlinear optimization problems where the objective is to be minimized, and the constraints are both convex. Contrarily to the more classical linear programming framework, convex programs often go unrecognized, and this is a pity since a large class of optimization problems can now be efficiently solved. In addition, it is possible to address hard, non-convex problems (such as "combinatorial optimization" problems) using convex approximations, that are sometimes more efficient than classical linear ones. The course covers some convex optimization theory and algorithms, and describes various applications arising in engineering design, machine learning and signal processing, finance, data mining, operations research. The course includes laboratory assignments, which consist of hands-on experiments with the optimization software CVX, and a discussion section. (F,SP) El Ghaoui, Wainwright

227B. Convex Optimization and Approximation. (3) Three hours of lecture per week. Prerequisites: 227A or consent of instructor. Convex optimization as a systematic approximation tool for hard decision problems. Approximations of combinatorial optimization problems, of stochastic programming problems, of robust optimization problems (i.e., with optimization problems with unknown but bounded data), of optimal control problems. Quality estimates of the resulting approximations. Applications in robust engineering design, statistics, control, finance, data mining, operations research. (F) El Ghaoui

228A. High Speed Communications Networks. (3) Three hours of lecture per week. Prerequisites: 122, 228A (may be taken concurrently). Descriptions, models, and analysis of modern communications networks. The course includes laboratory assignments, which consist of hands-on experiments with the optimization software CVX, and a discussion section. (F) Anantharam, Varaiya

229. Information Theory and Coding. (3) Three hours of lecture per week. Prerequisites: 226 recommended. Three hours of lecture per week. Prerequisites: 229B Fundamental bounds of Shannon theory and their application. Source and channel coding theorems. Galois field theory, algebraic error-correction codes. Private and public-key cryptographic systems. Offered alternate years. (SP) Staff

229A. Information Theory and Coding. (3) Three hours of lecture per week. Prerequisites: 226 recommended. Two hours of lecture per week. Prerequisites: 229B. Fundamental bounds of Shannon theory and their application. Source and channel coding theorems. Galois field theory, algebraic error-correction codes. Private and public-key cryptographic systems. Offered alternate years. (SP) Anantharam

229B. Error Control Coding. (3) Three hours of lecture per week. Prerequisites: 126 or equivalent (some familiarity with basic probability). Prior exposure to information theory not necessary. Error control codes are an integral part of most communication and recording systems where they are primarily used to provide resiliency to random errors. In this course, we will cover the basics of error control coding for reliable digital transmission and storage. We will discuss the major classes of codes that are important in practice, including Reed Muller codes, BCH and Reed Solomon codes, convolutional codes, concatenated codes, turbo codes, and low density parity check codes. The relevant background material from finite field and polynomial algebra will be developed as part of the course. Overview of topics: binary linear block codes; Reed Muller codes; Galois fields; linear block codes over a finite field; cyclic codes; BCH and Reed Solomon codes; convolutional codes and trellis based decoding; message passing decoding algorithms; trellis based soft decision decoding of block codes; turbo codes; low density parity check codes. (SP) Anantharam

230. Solid State Electronics. (3) Three hours of lecture per week. Prerequisites: 131; Physics 137B. Crystal structure and lattice dynamics. Carrier transport theory. Interface properties. Optical and thermal properties of semiconductors and insulators. (F) Chang-Hasnain

231. Solid State Devices. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 120 or equivalent. Physical principles and operational characteristics of semiconductor devices. Emphasis is on MOS field-effect transistors and their behaviors dictated by present and probable future technologies. (SP) Javey, King, Liu


233. Lightwave Systems. (3) Three hours of lecture per week. Prerequisites: 120 and 121 or equivalent; 136 recommended. Transmission properties of optical fibers—dispersion, attenuation, nonlinear effects (solitons). Direct-detection systems: analog and digital modulation, transmit and receiver design, noise properties of single and multimode fiber links, dependence on source coherence, subcarrier and multicarrier—CATV analog transmission issues of the role of optical fiber amplifiers. Coherent communication: FM noise and modulation properties of laser diodes, quantum limited detection, homodyne and heterodyne detection of various formats, laser linewidth requirements, diversity issues. Lightwave networks—WDM, FDMA, subcarrier, TDMA, and CDMA, relative merits. Topological issues—multihop (sore-and-forward) and hop-by-hop routing, fiber-optic switching. Optical network access protocols. Optical interconnection in high speed circuit modules and computers. (SP) Staff

235. Nanoscale Fabrication. (4) Three hours of lecture and one hour of discussion per week. This course discusses various top-down and bottom-up approaches to fabricating nanostructured materials. The topics include fundamental principles of self assembly, nano-implant lithography, electron beam lithography, nanowire and nanotube synthesis, quantum-dot synthesis (strain patterned and colloidal), post-synthesis modification (oxidation, doping, diffusion, surface interactions, and etching techniques). In addition, techniques to bridging length scales such as chemical vapor deposition, e-beam lithography and ion beam etching. We will discuss new electronic, optical, thermal, mechanical, and chemical properties brought forth by the very small sizes. Also listed as Nanoscience and Engineering C203. (F) Chang-Hasnain

236A. Quantum and Optical Electronics. (3) Three hours of lecture per week. Prerequisites: Physics 141 or equivalent. Interaction of radiation with atomic and semiconductor systems; density matrix treatment, semiclassical laser theory (Lamb's) laser response and relaxation. Gain, population inversion, optical gain, Q-switching and mode-locking, noise in lasers and optical amplifiers. Nonlinear optics, phase-conjugation, electrooptic, acoustooptic and magnetooptic effects, coherent optical communications, chaotic scattering. Offered alternate years. (F,SP) Staff

239. Partially Ionized Plasmas. (3) Three hours of lecture per week. Prerequisites: Upper division course in electromagnetics or fluid dynamics. Formerly 239. Introduction to partially ionized, chemically reactive plasmas, including collisional processes, diffusion, ions, sheaths, boundaries, and diagnostics. DC, RF, and microwave discharges. Applications to plasma-assisted materials processing and to plasma wall interactions. Also listed as Applied Science and Technology C239. Offered alternate years. (SP) Lieberman

240. Advanced Analog Integrated Circuits. (3) Three hours of lecture per week. Prerequisites: 140. Analysis and optimized design of monolithic operational amplifiers and wide-band amplifiers; methods and design trade-offs for both wide-band and narrow-band amplifiers; circuit considerations; analysis of noise in integrated circuits and low noise design. Precision passive elements, analog switches, amplifiers and comparators, voltage references. Formerly EECS 218, 239. Offered alternate years. (SP) Staff

241. Advanced Digital Integrated Circuits. (3) Three hours of lecture per week. Prerequisites: 141. Analysis and optimized design of present-day integrated circuits for communications application, particularly those for which nonlinear response must be included. Modes of bipolar and BiCMOS circuits, audio and video power amplifiers, optimal performance of near-sinusoidal oscillators and frequency-translation circuits. Phase-locked loop ICs, analog multipliers and voltage-controlled oscillators; advanced components for telecommunications circuits. Use of new CAD tools and systems. (F,SP) Staff

243. Advanced IC Processing and Layout. (3) Three hours of lecture per week. Prerequisites: 143 and either 140 or 141. The key processes for the fabrication of integrated circuits, Optical, X-ray, and e-beam lithography, ion implantation, oxidation, and diffusion. Thin film deposition. Wet and dry etching and ion milling. Effect of phase and defect equilibria on process control. (SP) Staff

244. Computer-Aided Design of Integrated Circuits. (3) Three hours of lecture per week. Prerequisites: 140 and either 140 or 141. This course will cover a wide variety of topics relating to the development of computer aids for integrated circuit design. The course will emphasize state-of-the-art technology and will use researchrádical design systems as the basis for the methods, as well as the application of results to practical problems, including details of implementation. Topics to be covered include: simulation, layout techniques, synthesis, verification, testing, and integrated design systems. (F) Keutzer

245. Introduction to MEMS Design. (4) Three hours of lecture per week. Prerequisites: Graduate standing in engineering or science; undergraduates with consent of instructor. Physical fabrication, and design of microelectromechanical systems (MEMS). Micro- and nanofabrication processes, including silicon surface and bulk micromachining and non-silicon micromachining. Interconnect and passivation strategies and materials. Microsensor and microactuator devices: electrostatic, piezoresistive, piezoelectric, thermal, magnetic transduction. Electronic position-sensing circuits and electrical design. CAD tools for MEMS design project is required. Also listed as Mechanical Engineering C218. (F,SP) Staff

246. Microelectromechanical Systems (MEMS). (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. This course is aimed at providing basic understanding of integrated circuit (IC) processes and microelectromechanical
Embedded System Design: Models, Validation, and Synthesis. (4) Four hours of lecture and two hours of laboratory/discussion per week. Prerequisites: 140. Architectural and circuit level design and analysis of integrated analog-to-digital converters, digital-analog interfaces in CMOS and BiCMOS VLSI technology. Analog-digital combined design tools, digital-analog converters, sample/hold amplifiers, continuous and switched-capacitor filters. RF integrated electronics including synthesizers, UNA's, and baseband processing. Low power mixed signal design. Data communications functions including clock recovery. CAD tools for analog design including simulation and synthesis. (F,SP) Khorramabadi

Advanced Topics in System Theory. (1-12) Course may be repeated for credit. One to four hours of discussion and three to five hours of self-scheduled work per unit. Prerequisites: Consent of instructor. Formerly 291E. Three hours of lecture per week. Formerly 291E. Prerequisites: consent of instructor. Three hours of lecture per week. Distributed systems and PDE models of physical phenomena (propagation of waves, network traffic, water distribution, fluid mechanics, electromagnetism, blood vessels, beams, road pavement, structures, etc.). Fundamental solution methods for PDEs: separation of variables, self-similar, characteristics, numerical methods, spectral methods. Stability analysis. Adjoint-based optimization. Lyapunov stabilization. Differential flatness. Viability control. Hamilton-Jacobi-based control. Also listed as Civil and Environmental Engineering C291F and Mechanical Engineering C236. (SP) Staff

Computer Science

Lower Division Courses

3L. Introduction to Symbolic Programming. (4) Students may require a deficiency in 3 by taking 3L. Three hours of lecture and three to nine hours of laboratory per week and approximately five hours of self-scheduled programming laboratory. Prerequisites: High school algebra. Introduction to computer programming, emphasizing symbolic computation and functional programming style. Students will write a project of at least 200 lines of code in Scheme (a dialect of the LISP programming language). (F,SP) Clancy

3S. Introduction to Symbolic Programming (Self-Paced). (1-4) Refer to computer science service course restrictions. Course may be repeated up to 4 units. One to four hours of discussion and three to nine hours of laboratory per week. Prerequisites: High school algebra. The same material as 3 but in a self-paced format. Introduction to computer programming, emphasizing symbolic computation and functional programming style, using the Scheme programming language. Units assigned depend on amount of work completed. The first two units must be taken together. (F,SP) Clancy, Garcia

9A. Matlab for Programmers. (1) Refer to computer science service course restrictions. Self-paced. Must be taken on a passed/not passed basis. Prerequisites: Programming experience equivalent to that gained in 3 or 16B. Familiarity with matrix processing. Introduction to the constructs in the MATLAB programming language, aimed at students who already know how to program. Array and matrix operations, functions and function handles, control flow, plotting and image manipulation, cell arrays and structures, and the Symbolic Mathematics toolbox. (F,SP) Clancy, Garcia

9B. Pascal for Programmers. (1) Refer to computer science service course restrictions. Self-paced. Must be taken on a passed/not passed basis. Prerequisites: Programming experience similar to that gained in 3 or Engineering 7 or 77. Self-paced Pascal course for students who already know how to program. This course provides the practice with the use of pointers and linked data structures that is assumed as prerequisite for 9C and 9F. (F,SP) Clancy, Garcia

9C. C for Programmers. (1) Refer to computer science service course restrictions. Must be taken on a passed/not passed basis. Prerequisites: Programming experience with pointers (or addresses in assembly language) and linked data structures equivalent to that gained in 9B, 61A, or Engineering 7 or 77. Self-paced course in the C programming language for students who already know how to program. Computation, input and output, flow of control, functions, arrays, and pointers, linked structures, use of dynamic storage, and implementation of abstract data types. (F,SP) Clancy, Garcia

9D. Scheme and Functional Programming for Programmers. (1) Refer to computer science service course restrictions. Must be taken on a passed/not passed basis. Prerequisites: Programming experience similar to that gained in 9B. Self-paced course in functional programming, using the Scheme programming language, for students who already know how to program. Recursion; higher-order functions; list processing; implementation of rule-based querying. (F,SP) Clancy, Garcia

9E. Productive Use of the UNIX Environment. (1) Refer to computer science service course restrictions. Self-paced. Must be taken on a passed/not passed basis. Prerequisites: Programming experience similar to that gained in 9B. Introduction to the hands-on use of UNIX or DOS or UNIX experience. Use of UNIX utilities and scripting facilities for customizing the programming environment, organizing files (possibly in more than one com-
with assembly language including writing an interrupt handler, 9C or equivalent, and consent of instructor. MIPS instruction set simulation. The assembly and linking process. Computer-

9F. C++ for Programmers. (1) Refer to "computing service courses" restrictions in this catalog. Must be taken on a passed/not passed basis. Prerequisites: Programming experience equivalent to that gained in 9B, 61A, or Engineering 7 or 77. Self-paced introduction to the constructs provided in the C++ pro-

9G. JAVA for Programmers. (1) One hour of self-

9H. Python for Programmers. (1) Refer to computer service course service restrictions. Self-paced. Must be taken on a passed/not passed basis. Prerequisites: Programming experience equivalent to that gained in the Python programming language, aimed at stu-

9I. Freshmen Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a letter-grade basis. Sections 5-6 to be graded on a passed/not passed basis. Freshman seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. Freshman sensi-

9J. Freshman Sophomore Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week per unit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F.S.P.) Clancy, Garcia

47A. Completion of Work in Computer Science 61A. (1) Students will receive no credit for 47A after taking 61A. Self-paced. Prerequisites: 61B or equivalent, 9D, and consent of instructor: Implementation of general operations. Streams and iterators. Implement-

47B. Completion of Work in Computer Science 61B. (1) Students will receive no credit for 47B after taking 61B. Self-paced. Prerequisites: A course in data structures, 9D or equivalent, and consent of instructor. Prerequisites: Sophomore mathematical maturity, and programming experience equivalent to that gained in 5 or the Advanced Placement Computer Science A course. Logic, infinity, and induction; applications include undecidability and stable mar-

70. Discrete Mathematics and Probability Theory. (4) Students will receive no credit for 70 after taking Mathematics 55. Three hours of lecture per week, or three hours of lecture and two hours of discussion per week. Prerequisites: Sophomore mathematical maturity, and programming experience equivalent to that gained in 3 or the Advanced Placement Computer Science A course. Logic, infinity, and induction; applications include undecidability and stable mar-

160. User Interface Design and Development. (4) Three hours of lecture, 1 hour of discussion, and three hours of laboratory per week. Prerequisites: 61C, 61E, 61F, and Computer Engineering 124. This course introduces students to the basics of models, analysis tools, and control for embedded sys-

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models, design examples, and user-centered design and task analysis. Interface-development methodologies, implementation tools, testing, and quality assessment. Projects will develop a direct-manipulation interface.

Agrawala, Bajcsy, Cann


164. Programming Languages and Compilers. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 61B and 61C. Survey of program- ming languages. The design of modern programming languages and techniques of language design, parsing, semantic analysis, and code generation. Implementation of interpreters, compilers, and assem- blers. Overview of run-time organization and error handling. (F,SP) Hilfinger, Necula

169. Software Engineering. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 61B, 61C and 105 or Cognitive Science C100, Psychology C105 or equivalent. Course will cover the principles and practices of software engineering. Topics include project management, quality assurance, and testing. (F,SP) Agrawala, Bajcsy, Canny

170. Efficient Algorithms and Intractable Problems. (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 61B; Cognitive Science C101, or English C108. Course is cross-listed with EECS 170. Pecs; C110 and Linguistics C109. (SP)

184. Foundations of Computer Graphics. (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 61B: programming skills in C, C++, or Java, linear algebra and calculus, and knowledge of hardware and software basics. Emphasis on the pur- pose of computer rendering: boundary representations, constructive solids geometry, hierarchal scene descriptions. Mathematical techniques for curve and surface representations of models; computer graphics rendering pipeline; architecture of modern graphics display devices. Geometrical transformations such as rotation, scaling, translation, and their combinations into matrix representation of coordinates, projective and perspective transformations. Algorithms for clipping, hidden surface removal, rasterization, and anti-aliasing. Scan-line based and ray-based ren- dering algorithms. Lighting models for reflection, refrac- tion, transparency. (F,SP) Barsky, O’Brien, Sequin

186. Introduction to Database Systems. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 61B and 61C. Access methods and file systems to facilitate data access. Hierarchical, net- work, and relational data models. Query languages for models. Embedding query languages in programming languages. Database services including protection, integrity control, and alternative views of data. High-level interfaces includ- ing application generators, browsers, and report writ- ers. Introduction to transaction processing. Database system implementation to be done as term pro- ject. (F,SP) Franklin, Hellerstein, Vazirani

188. Introduction to Artificial Intelligence. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 61A or 61B and consent of instructor; 70 or Mathematics 55. Basic ideas and techniques under- lying the design of intelligent computer systems. Topics include heuristic search, problem solving, game play, knowledge representation, logical inference, plan- ning, reasoning under uncertainty, expert systems, learning, perception, language understanding. (F,SP) Klein, Malik

C191. Quantum Information Science and Tech- nology. (3) Three hours of lecture/discussion per week. Prerequisites: Mathematics 54, Physics 7A-7B, and either Physics 7C, Mathematics 55, or Computer Science 170. This multidisciplinary course provides an introduction to fundamental conceptual aspects of quantum mechanics from a computational and infor- mational theoretic perspective, as well as physical implementations and technological applications of quantum information processing. Specific topics include basic structure of quan- tum algorithms, complexity, and cryptography, will be touched upon, as well as pertinent physical realiza- tions from nanoscale science and engineering. Also listed as Physic Science C191. (F,SP) Crommie, Vazirani, Whaley

194. Special Topics. (1-4) Course may be repeated for credit as topic varies. One to four hours of lecture/discussion per week. Prerequisites: Consent of instruc- tor. Topics will vary semester to semester. See the Computer Science Division announcements. (F,SP) Staff

C195. Social Implications of Computer Technology. (2) Three hours of lecture/discussion per week. Must be taken on a pass/credit or pass/pass basis. Topics include: electronic community; the changing nature of work; technological risks; the information economy; intellectual property; privacy; artificial intelligence and the sense of self; pornography and censorship; pro- fessional ethics. Students will lead discussions on some of these topics. Also listed as Interdisciplinary Studies Field Maj C155.

H196A-H196B. Honors Senior Thesis Research. (1-4;1-4) Individual research. Prerequisites: Open only to students in the computer science honors program. Thesis work under the supervision of a faculty mem- ber. To obtain credit the student must, at the end of two semesters, submit a satisfactory thesis to the Electrical Engineering and Computer Science depart- ment archive. A total of 4 units must be taken. The units may be distributed between one or two semes- ters in any way. H196A-H196B count as graded tech- nical elective units, but may not be used to satisfy the requirement for 27 upper division technical units in the student’s major requirements, or the minimum required computer science units.

198. Directed Group Studies for Advanced Under- graduates. (1-4) Course may be repeated for credit. Four hours of lecture required, as well as one additional hour. Prerequisites: Consent of instructor and major. May be taken on a pass/credit or pass/pass basis. Prerequisites: 2.0 GPA or better; 60 units completed. Group study of selected topics in computer science, usually relating to new developments.

199. Supervised Independent Study. (1-4) Enroll- ment restricted; see the "Introduction to Courses and Curricula" section of this catalog. Individual con- ferences. Must be taken on a pass/credit or pass/pass basis. Prerequisites: Consent of instructor and major. May be taken on a pass/credit or pass/pass basis. Supervised independent study. Enrollment restrictions apply. (F,SP) Staff

Graduate Courses

250. VLSI Systems Design. (4) Three hours of lecture and four hours of laboratory per week. Prereq- uisites: 150. Unified top-down and bottom-up design of integrated circuits and systems concentrating on archi- tecture, design methodology, and implementations. Topics include: design in hardware description languages, design in topological layout, and design in interconnection architectures, systolic arrays, self-timed systems. Trends in VLSI development. Physical limits. Tradeoffs in custom- design, standard cells, gate arrays. VLSI design tools. (F) Wawrynek

252. Graduate Computer Architecture. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor and major. Prerequisites: Graduate survey of contemporary computer organizations covering: early systems, CPU design, instruction sets, control, processors, busses, memory systems, I/O interfaces, connection networks, virtual memory, pipelined computers, multiprocessors, and case studies. Terminal paper or project is required. (F,SP) Culler, Kubiatowicz, Patterson

260. User-Interfaces to Computer Systems. (3) Three hours of lecture per week. Prerequisites: 162 and 184 recommended, or consent of instructor. Formerly CSE 267. Design and implementation of user interfaces to computer systems. Software and hardware architectures for personal workstations. Object-oriented programming systems. Form-based user interfaces, display management abstractions. Case studies of naive- and expert-user interfaces. Students will complete a substantial project. Canary

261. Security in Computer Systems. (3) Three hours of lecture per week. Prerequisites: 162. Graduate survey of security-related topics including protection, access control, distributed access security, firewalls, secure coding practices, safe languages, mobile code, and case studies from real-world systems. May cover cryptographic protocols and anonymity, and/or other topics as time permits. (SP) Brewer

262A. Advanced Topics in Computer Systems. (4) Three hours of lecture per week. Prerequisites: 162 and entrance exam. Formerly 262. Graduate survey of systems for managing computation and information, covering a breadth of topics: early systems; volatile memory management, including virtual memory and buffer management; persistent memory systems, including transactional and traditional transactional managers; storage metadata, physical vs. logical naming, schemas, process scheduling, threading and concurrency control; system support for networking, including TCP/IP, name services, transactional RPC, and active messages; security infrastructure; extensible systems and APIs; performance analysis and engineering of large software systems. Homework assignments, exam, and term paper or project required. (F,SP) Hellerstein

262B. Advanced Topics in Computer Systems. (3) Three hours of lecture per week. Prerequisites: 262A. Continued graduate survey of large-scale systems for managing information and computation. Topics include: basic principles of system design; extensibility, availability, attention to protection, security, and management of abstract data types; index structures, including support for concurrency and recovery; parallelism, including parallel architectures, query processing and scheduling; distributed data management, including distributed and mobile file systems and databases; distributed caching; large-scale data analysis and search. Homework assignments, exam, and term paper or project required. (F,SP) Brewer, Franklin, Hellerstein, Joseph

263. Design of Programming Languages. (3) Three hours of lecture and one hour of discussion, and six hours programming laboratory per week. Prerequisites: 164. Selected topics from: discussion, comparison, and design of programming languages, formal definitions, syntax, semantics, basic programming techniques, structured programming, debugging, verification of programs and compilers, and proofs of correctness. Yelick

264. Implementation of Programming Languages. (4) Three hours of lecture, one hour of discussion, and six hours programming laboratory per week. Prerequisites: 162 and 263 recommended. Compiler construction. Lexical analysis, syntax analysis. Semantic analysis, applications of optimization. Program management. Run-time organization. Graham


270. Combinatorial Algorithms and Data Structures. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 162. Design and analysis of efficient algorithms for combinatorial problems. Network flow theory, matching theory, matroid theory, augmenting-path algorithms, branch-and-bound algorithms; data structure techniques for efficient implementation of combinatorial algorithms; analysis of data structures; applications of data structure techniques to sorting, searching, and geometric problems. Papadimitriou, Sinclair, Vazirani


282. Algebraic Algorithms. (3) Three hours of lecture per week. Prerequisites: 164, Mathematics 113B, or permission of instructor. Theory and construction of symbolic-numeric computer programs. Polynomial algebra, GCD, factorization of integers and polynomials, integer and polynomial functions, analytic approximation, simplification, design of computer systems and languages for symbolic manipulation. Fateman

284. Computer-Aided Geometric Design and Modeling. (3) Three hours of lecture per week. Prerequisites: 270. Mathematical skill in calculus and linear algebra. Mathematical techniques for curve and surface representation, including: Hermite interpolation, interpolatio n splines, tensioned splines, surfaces, B-splines, Beta-splines, Coons patches, tensor product forms, as well as subdivision end/bounding conditions, and computational considera tions. Barsky

285. Solid Free-Form Modeling and Fabrication. (3) Three hours of lecture per week. Prerequisites: 184. From shape design to computer-based description suitable for manufacturing or rapid prototyping. Solid modeling techniques and procedural shape generation and representational methods. One-way functions; two-way representations; functional descriptions. Three hours of lecture per week. Vazirani

287. Design and Implementation of User Interfaces. (3) Three hours of lecture per week. Prerequisites: 170, or equivalent. The design and implementation of user interfaces. Models for parallel programming. Fundamental algorithms for linear algebra, sorting, FFT, etc. Survey of parallel machines and machine structures. Exiting parallel programming languages, vectorizing compilers, environments, libraries and toolboxes. Data partitioning techniques. Techniques for synchronization and load balancing. Detailed study and algorithm/program development of medium sized applications. Also listed as Vision Science C280. Malik

C281A. Statistical Learning Theory. (3) Three hours of lecture per week. Prerequisites: Linear algebra, calculus, basic probability, and statistics, algorithms. Recommended 289. Classification regression, clustering, dimensionality reduction, mixture models, hierarchical models, factorial models, hidden Markov, and state space models, Markov properties, and recursive algorithms for general probabilistic inference nonparametric methods including decision trees, kernel methods, neural net- works, and wavelets. Ensemble methods. Also listed as Statistics C241A. (F) Bartlett, Jordan, Wainwright


289. Knowledge Representation and Use in Computing. (3) Three hours of lecture per week. Prerequisites: Linear algebra, calculus, basic probability, and statistics, algorithms. Recommended 289. Classification regression, clustering, dimensionality reduction, mixture models, hierarchical models, factorial models, hidden Markov, and state space models, Markov properties, and recursive algorithms for general probabilistic inference nonparametric methods including decision trees, kernel methods, neural net- works, and wavelets. Ensemble methods. Also listed as Statistics C241A. (F) Bartlett, Jordan, Wainwright

292. Algorithms. (3) Three hours of lecture per week. Prerequisites: 170. Mathematics 113B, or permission of instructor. Theory and construction of symbolic-numeric computer programs. Polynomial algebra, GCD, factorization of integers and polynomials, integer and polynomial functions, analytic approximation, simplification, design of computer systems and languages for symbolic manipulation. Fateman

292V. Three hours of lecture per week. Prerequisites: 170. Mathematical skill in calculus and linear algebra. Mathematical techniques for curve and surface representation, including: Hermite interpolation, interpolatio n splines, tensioned splines, surfaces, B-splines, Beta-splines, Coons patches, tensor product forms, as well as subdivision end/ bounding conditions, and computational considera tions. Barsky

292W. Three hours of lecture per week. Prerequisites: 184. From shape design to computer-based description suitable for manufacturing or rapid prototyping. Solid modeling techniques and procedural shape generation and representational methods. One-way functions; two-way representations; functional descriptions. Three hours of lecture per week. Vazirani

327. Computer Vision. (3) Three hours of lecture per week. Prerequisites: Mathematical skill in calculus and linear algebra. Mathematical techniques for curve and surface representation, including: Hermite interpolation, interpolatio n splines, tensioned splines, surfaces, B-splines, Beta-splines, Coons patches, tensor product forms, as well as subdivision end/ bounding conditions, and computational considera tions. Barsky

328. Artificial Intelligence to Natural Language Processing. (3) Three hours of lecture per week plus programming assignment. Prerequisites: 188 and 186. Implementation of database systems on modern hardware systems. Considerations concern ing operating system design, including buffering, page size, prefetching, etc. Query processing algorithms, design of cache recovery and other database sys tems. Implementation of distributed data bases and data base machines. Franklin, Hellerstein

389. Knowledge Representation and Use in Computers. (3) Three hours of lecture per week. Prerequisites: 188 or equivalent. Fundamentals of knowledge representation and use in computers. Predicate cal culus, non-monotonic logics, probability and decision theory, and their use in capturing commonsense and
Endocrinology
(College of Letters and Science)

Group Office: 3060 Valley Life Sciences Building,
(510) 643-7330
endo.berkeley.edu

Chair: Gary L. Firestone, Ph.D.

Professors:
- Gary Firestone, Ph.D. Molecular endocrinology: hormonal control of cell growth and differentiation (Cell and Developmental Biology)
- Steven E. Glickman, Ph.D. Neural and endocrine bases of species-specific behavior (Integrative Biology)
- Tyrone B. Hayes, Ph.D. Amphibian developmental endocrinology (Integrative Biology)
- Marc Helleiner, Ph.D. Intracellular metabolic processes (Nutritional Science and Toxicology)
- Satyabrata Nandi, Ph.D. Hormones and growth, differentiation, and cancer (Cell and Developmental Biology)
- Hei-Sook Sul, Ph.D. Hormonal regulation of lipid metabolism and adipocyte differentiation (Nutritional Science and Toxicology)
- Irving J. Zucker, Ph.D. Seasonal reproductive cycles; biological clocks; neuroendocrine-behavior relations (Psychology)
- Howard A. Emettis, Ph.D.
- Paul Lucht (Emettis), Ph.D.
- David L. Wood (Emettis), Ph.D.

Associate Professors:
- Gregory Aponte, Ph.D. Regulation of epithelial cell motility and differentiation by neuropeptides (Nutritional Science and Toxicology)
- Gertrude C. Buehring, Ph.D. Endocrinology and prevention of breast cancer (Public Health and Epidemiology)

Assistant Professors:
- George E. Breier, Ph.D. Avian reproductive biology, neuroendocrinology, and behavior (Integrative Biology)
- Danae Kaufert, Ph.D. Stress and steroid hormones effects on the brain (Integrative Biology)
- Lance J. Kriegsfeld, Ph.D. Neuroendocrinology, reproductive biology, and biological timing (Psychology)
- Andreas Stahl, Ph.D. Molecular biology of obesity related disorders (Nutritional Science and Toxicology)
- Jen-Chywan Wang, Ph.D. Mechanisms of glucocorticoid receptor-regulated metabolism (Nutritional Science and Toxicology)

Principal Scientists:
- Mina Bessis, Ph.D. Regulation of tissue-specific gene expression in normal and malignant breast cells (Life Sciences Division, LBNL)
- G. Shyamala, Ph.D. Endocrine hormonal regulation of mammalian development and cancerogenesis (Life Sciences Division, LBNL)

The Graduate Program

The faculty associated with the program for the M.A. and the Ph.D. in endocrinology have diverse interests representing endocrinology in the broadest sense: chemical mediators in the living world (autocrine, paracrine, endocrine and ectohormonal factors), with approaches from molecular and cellular endocrinology through organismal and comparative endocrinology to chemical ecology.

Students who plan to work for higher degrees in endocrinology at Berkeley will be guided by a graduate adviser and by the professor (mentor) who directs their research. The graduate adviser and mentor will: (1) ascertain whether students have met the minimum requirements, (2) recommend to prospective candidates what additional courses to take, (3) decide with them the fields to be covered in the qualifying examinations, and (4) act generally in an advisory capacity. The candidates are expected to have completed an undergraduate major in some related biological science, with a minimal biology leading to the B.A. or B.S. degree.

To advance to candidacy for the Ph.D., students must complete all requirements (information can be obtained from the graduate advisers or at the office given above), including passage of an oral qualifying examination.

Energy and Resources Group / 243

Energy and Resources Group (Special Studies)

Department Office: 310 Barrows Hall, (510) 642-1640
erg.berkeley.edu

Chair: Daniel A. Farber, J.D.

Professors:
- John Hart, Ph.D. University of Wisconsin. Ecology, climate, biodiversity
- Daniel Kammen, Ph.D. Harvard University. Energy, society, development, environment
- Catherine Koshland, Ph.D. Stanford University. Energy, health and environment, industrial ecology
- Richard Norgaard, Ph.D. University of Chicago. Ecological economics, environmental epistemology, sustainable development

Assistant Professor:
- Isla Ray, Ph.D. Stanford University. Water, development, common property resources

Adjunct Associate Professor:
- Margaret Torn, Ph.D. University of California, Berkeley. Lawrence Berkeley National Laboratory, land use, and climate change

Professors:
- Paul Alivisatos, Ph.D. (Chemistry)
- Miguel A. Allen, Ph.D. (Environmental Science, Policy, and Management)
- Edward Arens, Ph.D. (Architecture)
- David Auslander, Sc.D. (Mechanical Engineering)
- Dennis Baldwin O'Brien, Ph.D. (Agricultural and Resource Economics)
- Lance Delaplane, Ph.D. (Environmental Science, Policy, and Management)
- Stephen Decker, Ph.D. (Environmental Science, Policy, and Management)
- Charles Birdskill, Ph.D. (Electrical Engineering) Science
- Gail Schiller Brager, Ph.D. (Architecture)
- Eric Breuer, Ph.D. (Electrical Engineering and Computer Science)
- Robert Cervoni, Ph.D. (City and Regional Planning)
- Galen Cranz, Ph.D. (Architecture)
- Kurt M. Cuffey, Ph.D. (Earth and Planetary Science)
- Elizabeth Dealin, Ph.D. (Economics)
- Alain deJanvry, Ph.D. (Agricultural and Resource Economics)
- William Dietrich, Ph.D. (Earth and Planetary Science)
- Brenda Eckenrode, Ph.D. (Public Health)
- Peter Evans, Ph.D. (Sociology)
- Roger Falcone, Ph.D. (Physics)
- Daniel Farber, J.D. (Law)
- Mary Firestone, Ph.D. (Environmental Science, Policy, and Management)
- Anthony Fisher, Ph.D. (Agricultural and Resource Economics)
- Louise Fortmann, Ph.D. (Environmental Science, Policy, and Management)
- Harrison Fraker Jr., Ph.D. (Environmental Design)
- David Freedman, Ph.D. (Statistics)
- William Fung, Ph.D. (Center for Atmospheric Sciences)
- Astrok Gabodi, Ph.D. (Lawrence Berkeley National Laboratory and Department of Civil and Environmental Engineering)
- Wayne M. Gelz, Ph.D. (Environmental Science, Policy, and Management)
- Allen Goldstein, Ph.D. (Environmental Science, Policy, and Management)
- Michael Hanemann, Ph.D. (Economics)
- Robert Harley, Ph.D. (Civil and Environmental Engineering)
- Gillian Hart, Ph.D. (Geography)
- Tyrone Hayes, Ph.D. (Integrative Biology)
- Nancy Hintz, Ph.D. (Agricultural and Resource Studies)
- James Hunt, Ph.D. (Civil and Environmental Engineering)
- Judith Innes, Ph.D. (City and Regional Planning)
- Robert Kagan, Ph.D. (Political Science)
- William Kastenberg, Ph.D. (Nuclear Engineering)
- Jim Kohler, Ph.D. (Earth and Planetary Science)
- G. Mathias Kondolf, Ph.D. (Earth and Planetary Science)
- Todd LaPorte, Ph.D. (Political Science)
- Allen Lichtemberg, Ph.D. (Electrical Engineering and Computer Sciences)
- Carolyn Merchant, Ph.D. (Environmental Science, Policy, and Management)
- Craig Morton, Ph.D. (Integrative Biology)
- Michael Nacht, Ph.D. (Agricultural and Resource Science)
- Laura Nader, Ph.D. (Anthropology)
- William Nazaroff, Ph.D. (Civil and Environmental Engineering)
- Michael O'Hare, Ph.D. (Public Policy)
- David Peluso, Ph.D. (Environmental Studies)
- Peer Petersen, Ph.D. (Nuclear Engineering)
- Thomas (Zack) Powell, Ph.D. (Integrative Biology)
- Mary Power, Ph.D. (Integrative Biology)
- Jeffrey Rosen, Ph.D. (Environmental Science, Policy, and Management)
- Robert Sawyer, Ph.D. (Mechanical Engineering)
- Annalisa Saxenian, Ph.D. (City and Regional Planning)
- Whendee Silver, Ph.D. (Environmental Science, Policy, and Management)
- Ellen Simms, Ph.D. (Integrative Biology)

"Recipient of Distinguished Teaching Award"
The Energy and Resources Group (ERG) is an interdisciplinary academic unit of the University of California at Berkeley, conducting programs of graduate teaching and research that treat issues of energy, resources, development, human and biologic diversity, environmental justice, governance, global climate change, and new approaches to thinking about economics and consumption. Established in 1973, ERG offers two-year M.A. and M.S. degrees in energy and resources, as well as a Ph.D. and an undergraduate minor in energy and resources.

Faculty. The faculty of ERG consists of six professors of energy and resources plus some 100 other affiliated faculty members whose main appointments span all five colleges and four of the schools of the Berkeley campus, as well as the University’s Lawrence Berkeley National Laboratory and the Livermore national laboratories. The chair is normally elected from among the affiliated faculty.

Students. There are approximately 60 graduate students and up to 250 undergraduate minors pursuing additional coursework and individual research programs, all of whom are enrolled in ERG. The undergraduate minor in energy and resource issues on both a national and global scale is offered to students majoring in the schools of the Berkeley campus, as well as the University’s Lawrence Berkeley National Laboratory and Livermore national laboratories. The minor is designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. This program is available in all campus departments, and topics may vary from department to department and semester to semester.

100. Energy and Society. (4) Three hours of lecture and one hour of discussion per week. Energy sources, uses, and impacts: an introduction to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being: energy in international perspective, origins, and character of energy crisis. (F) Kammen

101. Ecology and Society. (3) Three hours of lecture per week. Prerequisites: One college level course, or high school Advanced Placement, in either physics or biology; introductory calculus. This course introduces students to the many ways in which our lives are currently intertwined with the environment. Topics will include: ecological limits to growth; climate change and other threats to biodiversity; the value of ecosystem goods and services; the ecology of disease; ecological characteristics of ecosystems; and the modulation of ecosystems. Offered alternate years. (F) Harte

Further Information. Contact the Energy and Resources Group, 310 Barrows Hall #3050, University of California, Berkeley; Berkeley, CA 94720-3050; (510) 642-1640; erg.berkeley.edu.
standing; calculus (Math 1A-1B or 16A-16B); physics (7A-7B or 8A-8B), chemistry (1A or 4A), biology (1B or 11), or consent of instructor. Human disruption of biogeographic cycles; causes and consequences; impacts of climate change and acid deposition; transport and health impacts of pollutants; loss of species; radioactivity in the environment; epidemics. (SP) Hart.

150. Politics of Energy and Environmental Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division or graduate standing; some coursework in social science and technical areas. How existing agencies and policy makers incorporate new concerns into their deliberations, and how they mandate to address these newer concerns seek to fold their priorities into the existing institutional and policy structures. (F) Staff

170. Environmental Classics. (3) Hours of seminar per week. Prerequisites: Upper division standing. Motivation: What is the history and evolution of environmental thinking and writing? How have certain “environmental classics” shaped the way in which we think about nature, society, and development? This course will use a selection of 20th-century books and papers that have had a major impact on academic and wider public thinking about the environment and development to probe these issues. The selection includes works and commentaries related to the influential Environmental Movement, environmental politics and policy in the U.S., as well as in the developing world. Through the classics and their critiques, reviews, and commentaries, the class will explore the evolution of thought on these transforming ideas. (F) Kammen, Ray

175. Water and Development. (4) Four hours of seminar per week. Prerequisites: Upper division standing or consent of instructor. This course introduces students to current development and environmental issues in Africa. It begins with a historical introduction to the colonial and modern perspectives, and then focuses on the political economy of water management issues in sub-Saharan Africa. Prerequisites: Open to ERG graduate students only or consent of instructor. Introduction to interdisciplinary analysis as it is practiced in the ERG. Most of the course comprises extended case studies on energy and resource issues, introduced through a particularly influential book or set of papers. The course also provides an introduction to the current research activities of the ERG faculty as well as practical knowledge and skills necessary to successfully complete graduate school in an interdisciplinary program. (F) Harte, Kamber, Ray

C180. Ecological Economics in Historical Context. (3) Three hours of lecture and two hours of discussion per week. Prerequisites: Economics 100A or equivalent. Economists through history have explored economic and environmental interactions, physical limits to growth, what constitutes the good life, and how economic justice can be assured. Yet economists continue to use measures and models that simplify these issues and promote bad outcomes. Ecological economics responds to the limitations of the latter measure for complexity. The new perspectives needed to understand complexity in order to move toward sustainable, fulfilling, just economies. Also listed as Environ-mental Economics and Policy C180. (SP) Norgaard

190. Seminar in Energy, Environment, Development: Interdisciplinary Issues. (3) Course may be repeated for credit. One to three hours of lecture per week. Prerequisites: Upper division standing and consent of instructor. Critical, cross disciplinary analysis of specific issues or general problems of how people interact with environmental and resource systems. More than one section may be given each semester on different topics depending on faculty and student interest. (F) Staff.

198. Directed Group Studies for Advanced Under-graduates. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing, plus particular courses to be specified by instructor. Group study. Staff.

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Enrollment restricted by regulations in this catalog. Individual conferences. (F, SP) Staff.

C200. Energy and Society. (4) Three hours of lecture and one hour of discussion per week. Energy sources, uses, and impacts; an introduction to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being; energy international perspective, origins, and character of energy crisis. Also listed as Public Policy C284. (F,SP) Kammen

200N. Energy and Society. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing. Formerly 200. Energy sources, uses, and impacts to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being; energy international perspective, origins, and character of energy crisis. (F) Kammen

210. Interdisciplinary Analysis in Energy and Environmental Resources. Prerequisites: Open to ERG graduate students only or consent of instructor. Introduction to interdisciplinary analysis as it is practiced in the ERG. Most of the course comprises extended case studies on energy and resource issues, introduced through a particularly influential book or set of papers. The course also provides an introduction to the current research activities of the ERG faculty as well as practical knowledge and skills necessary to successfully complete graduate school in an interdisciplinary program. (F) Harte, Kamber, Ray

220. Modeling Ecological and Meteorological Phenomena. (3) Students will receive no credit for C220 after taking Integrative Biology 2271. Three hours of lecture per week. Prerequisites: Integrative Biology 102 or consent of instructor. Modeling methods in ecology and meteorology; stability analysis; effects of anthropogenic systems. Also listed as Environ Sci, Policy, and Management C211. Harte

225. Quantitative Methods for Ecological and Environmental Modeling. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include linear algebra; difference equation, ordinary differential equation, and partial differential equation; chaotic stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources, Environmental Science, Policy, and Management. Also listed as Environ Sci, Policy, and Management C205 and Integrative Biology C205. (F) Staff.

220. Modeling Energy, Environmental, and Resource Systems. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Understanding of undergraduate linear algebra and first-semester calculus (Math 54 or equivalent). Limited to seniors and graduate students. A first course in modeling with an emphasis on applications in energy, environment, and resource management. Readings, lectures, homework, and small projects will be used to help understand the role of modeling in exploring the trade-offs between energy and resources. Course is based in Excel, both the native Solver module and the more powerful add-in OptQuest that is included with the textbook, so each student will be able to apply the learned skills in a variety of application problems. Goals: the student will be able to describe a problem from an optimization perspective, formulate the appropriate mathematical programming model to examine the problem, solve it using OptQuest, and interpret the results. Course provides the fundamental basis for more sophisticated modeling but does not cover algorithm implementations. (Staff.

C226. Photovoltaic Materials; Modern Techno-logies in the Context of a Growing Renewable Energy Market. Three hours of lecture per week. Prerequisites: Material Science and Mineral Engineering 111 or 123 or equivalent. Should have a firm foundation in electronic and optical props of semiconductors and optical devices. This technical elective course focuses on the fundamentals of photovoltaic energy conversion with respect to the physical princi-pals of operation and design of efficient semiconduc-tor solar cell devices. This course aims to equip students with the concepts and analytical skills nec-essary to assess the utility and viability of various modern photovoltaic technologies in the context of a growing global renewable energy market. Also listed as Materials Science and Engineering C226. (F) Kammen, Haller.

251. The Political Economy of Energy. (3) Three hours of lecture per week. Prerequisites: Some famil-iarity with present critical problems in energy policy and energy sources. This course will provide a broad overview of rele-vant technologies. The political economy of energy policy, emphasizing the appropriate and actual roles of state and federal governments. Emphasis on how and why we are at a peak in the energy crisis. Also listed as Public Policy C251.

254. Electric Power Systems. (3) Three hours of lecture per week. Prerequisites: Physics 7B or 8B or equivalent. Provides an understanding of concepts in electric power, including generation, transmission, and operation of power systems, including generation, transmission, and consumption. Covers basic electromagnetic physics, reactive power, circuit and load analysis, reliability, planning, dispatch, organizational design, regulation, environmental, end-use efficiency, and new technologies. (SP) Staff.

270. Environmental Classics. (3) Hours of seminar per week. Prerequisites: Graduate standing. Motivation: What is the history and evolution of envi-ronmental classics? How have certain “environmental classics” shaped the way in which we think about nature, society, and development? This course will use a selection of 20th-century books and papers that have had a major impact on academic and wider public thinking about the environment and development to probe these issues. The selection includes works and commentaries related to these works that have influenced environmental politics and policy in the U.S., as well as in the developing world. Through the classics and their critiques, reviews, and commentaries, the class will explore the evolution of thought on these transforming ideas. (F) Kammen, Ray

273. Research Methods in Social Sciences. (3) Three hours of lecture per week. Prerequisites: Grad-uate standing or consent of instructor. This course aims to introduce graduate students to the rich diversity of research methods that social scientists have developed for the empirical aspects of their work. Its primary goal is to encourage critical thinking about the research process: how we “know,” how we match research meth-ods to research questions, how we design and con-duct our information/data collection, what we assume and how we create, and what we assume and how we create. Also listed with additional seminars raised by fieldwork-oriented studies. (SP) Ray

275. Water and Development. (4) Four hours of lec-ture and one hour of discussion per week. This class is an interdisciplinary graduate seminar for students of water policy in developing countries. It is not a seminar on theories and practices of development through the “lens” of water. Rather, it is a seminar motivated by the fact that over one-billion people in developing countries have no access to safe drinking water, three-billion
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don’t have sanitation facilities and many millions of small farmers do not have reliable water supplies to
ensure a healthy crop. Readings and discussions will
cover the behaviors of deep groundwater systems and the
implications for groundwater use and management in de-
veloping countries; the potential for technological, social,
and economic consequences of these problems; the role
of institutions in access to water and sanitation; and
the pitfalls and promises behind some of today’s popular “solutions.” (F, Ray)

280. Energy Economics. (3) Three hours of lecture per week. Prerequisites: Economics 100A or equiv-
alent; basic calculus or linear algebra. Input-output and cost benefit analysis applied to energy; exhaustion
theory and economics of energy supply; patterns of energy use; trade-offs in energy conservation; the effect
of energy policy on supply and demand; projecting future energy and resource supply and use. Staff

283. Information and Communications Technology for Development. (3) Students will receive no credit for Information C283 after taking Information 290, Section 17. Three hours of seminar per week. This seminar reviews current literature and debates regarding Information and Communication Technolo-
gies and Development (ICTD). This is an interdisciplinary and practice-oriented field that draws on insights from economics, sociology, engineering, computer science, management, public health, etc. Also listed as Information C283. (SP) Ray, Saxenian

290. Seminar in Energy and Resources. (1-3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing in Energy and Resources; consent of instructor. Graduate student presentations and faculty-student discussions of advanced topics in energy and resources. Specific topics vary according to faculty and student interest. (F,SP) Staff

291. Special Topics in Energy and Resources. (1-
3) Course may be repeated for credit. One to two hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. Study and critical analysis of advanced topics in energy and resources using interdisciplinary approaches. Specific topics vary according to faculty and student interest. Offered every other year. (F,SP) Staff

292A. Tools of the Trade. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatis-
factory basis. Prerequisites: Consent of instructor. Quantitative methods for energy and resource analy-
sis. Topics include: linear algebra, differential equations, statistical methods, chemical equilibrium theory, and thermodynamics. (F,SP) Staff

292C-292D. Master’s Project Seminar. (2/2) Two hours of seminar per week. Credit and grade to be
awarded on completion of sequence. Required of second-year Energy and Resources master’s candi-
dates. Topics include the adoption of a research pro-
ject, research design, presentation of work, statistical analyses. Students will apply the interdisciplinary meth-
ods, approaches, and perspectives learned in the core curriculum. Sequence begins fall each year. Credit
and grade to be awarded upon completion of the full
sequence. Staff

293A. Technology and Sustainability. (2) One and one-half hours of lecture per seminar per week and
one hour of discussion every other week. Must be taken on a satisfactory/unsatisfactory basis. Prereq-
uisites: Graduate standing or consent of instructor. Assessment of the consequences and opportunities of various technological systems (such as energy, build-
ings, transportation, materials, waste management) for sustainability. Policy, social, and economic con-
sequences of technologies. Metrics and measures. Specific topics vary from year to year according to student and faculty interests. Course meetings include a mix of faculty lectures and student-led seminar presentations. Also listed as Civil and Environmental Engineering C293A. (F) Gadgil, Horvath, Nazaroff

295. Special Topics in Energy and Resources. (1) Course may be repeated for credit. One and one-half
hours of lecture per week. Must be taken on a satis-
factory/unsatisfactory basis. Presentations of research in energy issues by faculty, students, and visiting lec-
turers. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly 298. Lectures, discussions, and presentations on current research in energy and resources. Staff

296. Doctoral Seminar. (2) Course may be repeated for credit. Two hours of section per week. Must be taken on a satisfactory/unsatisfactory basis. Prereq-
uisites: Consent of Instructor. Formerly 298. Lectures, discussions, and presentations on current research in energy and resources. Staff

298N. Directed Group Study. (1-3) Course may be repeated for credit. One to three hours of directed
group study per week. Must be taken on a satisfactory/ unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. Informal group studies of special problems in energy and resources. (F,SP) Staff

299. Individual Research in Energy and Resources. (1-
12) Course may be repeated for credit. Variable. Prerequisites: Graduate standing. Investigation of problems in energy and resources from an interdisci-
plinary perspective. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-
8) Course may be repeated for credit. Individual study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual study on consultation with the major advisor, intended to provide an opportunity for qualified students to prepare them-

301. Graduate Student Instructor Practicum. (3) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/ unsatisfactory basis. Prerequisites: Appointment as a graduate student instructor in the Group and permission of the graduate advisor. Course credit for expe-
rience gained in academic teaching through employ-
m ent as a graduate student instructor. (F,SP) Staff

302. Graduate Student Research Practicum. (1) Course may be repeated for credit. One and one-half
hours of lecture per week. Must be taken on a satisfac-
tory/unsatisfactory basis. Presentations of research in energy issues by graduate students required to enroll for three semesters. (F,SP) Staff

Engineering (College of Engineering)
Office of the Dean: 320 McLaughlin Hall #1700, (510) 642-7771
College of Engineering Student Affairs Office: 328 McLaughlin Hall #1702, (510) 642-7594
Dean: S. Shankar Sastry, Ph.D.

Executive Associate Dean: Fiona M. Doyle, Ph.D.
Associate Dean for International Relations: George Leitmann, Ph.D.
Associate Dean of Student Affairs: Dennis Liu, Ph.D.
Associate Dean for Research: Michael T. Tsatsaronis, Ph.D.
Associate Dean for Capital Projects: Carlo Séquin, Ph.D.
Graduate Student Affairs Office:
Contact specific department or program.

Overview of the College
Engineering has been an integral part of the Uni-
versity since it was chartered in 1868. Half of Berkeley’s original six colleges focused on engi-
neering, including civil, mechanics and mining.

Today, the College of Engineering encompasses seven departments, a selection programs, research and graduate groups, and plays an important global role in furthering engineering technology and education. Directing Berkeley’s strength and breadth of the University and our partners, the college strives to create a learning environment that is collaborative, cutting-edge, inter- and multi-
disciplinary to prepare future leaders and engi-
neering practitioners for our rapidly evolving world.

Listed below are the college’s departments, inter-
disciplinary programs and degrees. More infor-
mation on each can be found in the corresponding section of the department or program in this cata-
log. Further details on the curricula and degree requirements for undergraduate students may be found in the College of Engineering Announce-
m ent and the Graduate Guide to Undergraduate and Graduate Study at coe.berkeley.edu/college-of-engineering-
announcement. For graduate students, see the Graduate Division’s Guide to Graduate Policy at grad.berkeley.edu/policies.

Undergraduate Programs

Department of Bioengineering
Undergraduate Programs:
• B.S. in bioengineering

Bioengineering Graduate Group (offered in conjunc-
tion with UC San Francisco Department of Bioengineering):
• M.S., Ph.D. in bioengineering

Department of Civil and Environmental Engineering
Undergraduate Program:
• B.S. in civil engineering

Graduate Programs:
• M. Eng., M.S., Ph.D. in civil and environmental engineering

Department of Electrical Engineering and Computer Sciences
Undergraduate Programs:
• B.S. in electrical engineering and computer sciences in one of the following programs:
  —electrical and computer engineering
  —computer science and engineering

B.A. in computer science (offered through the College of Letters & Science)

Graduate Programs:
• M.S., Ph.D. in electrical engineering and computer sciences

Department of Industrial Engineering and Operations Research
Undergraduate Programs:
• B.S. in industrial engineering and operations research

Department of Materials Science and Engineering
Undergraduate Program:
• B.S. in materials science and engineering

Graduate Programs:
• M.S., M. Eng., Ph.D., D. Eng. in industrial engineering and operations research

Department of Mechanical Engineering
Undergraduate Programs:
• B.S. in mechanical engineering

• B.S. in manufacturing engineering (offered in conjunc-
tion with the Department of Mechanical Engineering)

• B.A. in operations research and management sciences (offered through the College of Letters & Science)

Graduate Programs:
• M.S., M. Eng., Ph.D., D. Eng. in mechanical engineering

Department of Nuclear Engineering
Undergraduate Programs:
• B.S. in nuclear engineering

Graduate Programs:
• M.S., M. Eng., Ph.D. in nuclear engineering

1Students may not apply for the M.S. only, al-
though it may be awarded to students pursuing
work toward the Ph.D. after fulfillment of the ap-
propriate requirements.
Other Programs

Applied Science and Technology graduate program
• M.S.1, Ph.D. in applied science and technology

Engineering—Undeclared

Engineering Science
• B.S. in computational engineering science
• B.S. in engineering mathematics and statistics
• B.S. in environmental engineering science

Technology and Leadership Studies
• College of Engineering is an Annales and Technology program (Undergraduate)
• Certificate in Management of Technology (Graduate)

Joint Major Programs (Undergraduate)
• B.S. in bioengineering and materials science and engineering
• B.S. in chemical engineering and materials science and engineering (offered through the College of Chemistry)
• B.S. in chemical engineering and nuclear engineering (offered through the College of Chemistry)
• B.S. in electrical engineering and computer science and nuclear engineering
• B.S. in materials science and engineering and mechanical engineering
• B.S. in materials science and engineering and nuclear engineering
• B.S. in mechanical engineering and nuclear engineering

Concurrent Degree Programs (Graduate)
• M.Arch/M.S. in architecture and civil and environmental engineering
• M.C.P./M.S. in city and regional planning and civil and environmental engineering
• M.C.P. in public policy and either civil and environmental engineering, electrical engineering and computer sciences, industrial engineering and operations research, materials science and engineering, mechanical engineering, or nuclear engineering

Other Sections of Interest

Chemical Engineering (College of Chemistry)
Nanoscale Science and Engineering
Studies in Engineering, Science, and Mathematics Education (School of Education)

Undergraduate Programs

The College of Engineering's bachelor of science programs are designed to equip graduates with a full command of engineering principles and practices, and the tools to become leaders in their chosen profession. The lower division curriculum emphasizes foundations in mathematics, science and engineering, leading to more focused upper division coursework in one of the engineering programs, and in many cases, specific specializations or emphases within the program. The curriculum calls for study of the humanities and social studies to supply additional skills needed to compete in a global economy.

Degree requirements. Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements. In addition, students must complete the requirements for the College of Engineering and for one B.S. program.

*Students may not apply for the M.S. only, although it may be awarded to students pursuing work toward the Ph.D. after fulfillment of the appropriate requirements.

Full details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement.

Accreditation. The following programs are accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; (410) 347-7700: civil engineering, computer engineering, industrial engineering and operations research, materials science and engineering, mechanical engineering, and nuclear engineering. In addition, the combined science and engineering program is accredited by the Computing Accreditations Commission of ABET, Inc.

Graduate Admission. The College of Engineering accepts applicants at the freshman and junior transfer levels. Students interested in applying to the College of Engineering should follow the procedures outlined in the "Undergraduate Study" section of this catalog. Additional information can be found on the College of Engineering Prospective, and Undergraduate Student Philosophy degrees. See the "College Overview" section of this catalog for information on specific degrees awarded by department. The College of Engineering—Undeclared Program, admission to this program is generally more competitive than admission to other engineering majors. Applicants who know which field of engineering they wish to study should apply to that major.

Graduate Programs

The College of Engineering offers Master of Science, Master of Engineering, Doctor of Engineering, and Doctor of Philosophy degrees. See the "College Overview" section of this catalog entry or the section for your department of interest for information on specific degrees awarded by department. The College of Engineering and Doctor of Philosophy degrees emphasize engineering and applied sciences, while the Master of Engineering and Doctor of Engineering degree programs emphasize application of science and engineering.

Degree requirements. Graduate students must follow the degree and scholarship requirements outlined in the "Graduate Education" section of this catalog and in the Graduate Division’s Guide to Graduate Policy available online at grad.berkeley.edu/policies.

Graduate Admission. Interested applicants should: follow the procedures outlined in the “Graduate Education” section of this catalog. See the web site of your department or program of interest for further details.

Lower Division Courses

5. Solid-State Science for Engineers. (4) Three hours of lecture and one hour of discussion per week. This course introduces the fundamental principles of solid-state chemistry associated with the behavior of real materials used in engineering practice. It formulates the critical inter-relationships among scientific concepts needed by engineers to understand the internal structure of crystalline and amorphous solids exhibiting metallic, ceramic, semiconducting, and/or polymeric properties. (F,SP) Denaro, Gregorio, Maitra.

7. Introduction to Computer Programming for Scientists and Engineers. (4) Two hours of lecture, one hour of discussion, and four hours of laboratory per week. Prerequisites: Mathematics 1B (maybe taken concurrently). Formerly 77. Elements of procedural object-oriented programming, iteration, recursion, and floating-point computations for engineering analysis. Introduction to data structures. Representative examples are drawn from mathematics, science, and engineering. The course uses the MATLAB programming language. Sponsor- ing departments: Civil and Environmental Engineering and Mechanical Engineering. (F,SP) Staff

10. Engineering Design and Analysis. (3) Three hours of lecture and three hours of laboratory per week. This is an introduction to the profession of engineer- ing and the different fields of study in the College of Engineering, through a variety of modular design and analysis projects. The emphasis is on hands-on creative components, teamwork, and effective communication. Common lecture sessions during the first three weeks of the semester will address ethics and societal context for engineering projects, introduction to engineering analysis. Following this introduction, stu- dents will take two six-week modules involving both lectures and laboratories in which they will learn de- sign and analysis skills, and will apply these skills to illustrative problems drawn from various engineering majors. (F,SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of lecture/discussion/ seminar per week. Sections 1-3 to be graded on a pass/not passed basis. Sections 4-6 to be graded on a pass/not pass basis. The Berkeley Seminar Pro- gram is designed to provide students with the oppor- tunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Semi- nars are offered in all college departments, and topics vary from department to department and semester to semester. (F,SP)

28. Basic Engineering Design Graphics. (3) Two hours of lecture and three hours of laboratory per week. Introduction to the computer-aided design process and graphical communications tools used by engi- neers. Conceptual design of products. Tolerance anal- ysis for fabrication. Documentation of design through engineering drawing. Development of spatial reason- ing skills. Basic descriptive geometry. Parametric solid modeling and feature based design. Use of computer- assisted design as a design tool. (F,SP) Lieu

36. Engineering Mechanics I. (2) Two hours of lec- ture per week. Prerequisites: Mathematics 1A–1B; Physics 7A. A vectorial treatment of the principles of statics of particles and rigid bodies. Application to problems of equilibrium of two-dimensional and three- dimensional systems. Work and potential energy, the principle of virtual work; stability of equilibrium. Spon- sor Department: Civil and Environmental Engineer- ing. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of sem,engineering design project, and 3 hours of laboratory per week. Prerequisites: Mathematics 1A–1B; Physics 7A. A vectorial treatment of the principles of statics of particles and rigid bodies. Application to problems of equilibrium of two-dimensional and three-dimensional systems. Work and potential energy, the principle of virtual work; stability of equilibrium. Sponsor Department: Civil and Environmental Engineering. (F,SP) Staff

45. Properties of Materials. (3) Three hours of lecture per week and three hours of laboratory on alternate weeks. Prerequisites: Physics 7A. Application of basic principles of physics and chemistry to the engineering properties of materials. Students are expected to develop an understanding of the relation between microstructure and the mechanical properties of metals, concrete, polymers, and ceramics, and the electrical properties of semiconducting and superconducting materials. Sponsor Department: Materials Science and Engineering. (F,SP) Staff

47. Supplementary Work in Lower Division Engi- neering. (1-3) Course may be repeated for credit.
Prerequisites: Limited to students who must make up a fraction of a required lower division course. May be taken only with permission of the Dean of the College of Engineering. Students with partial credit in a lower division engineering course may complete the work under this heading. (F,SP) Staff

92. Perspectives in Engineering. (1) Course may be repeated for credit. One hour of lecture per week. Must be taken on a passed/not passed basis. This series of lectures provides students, especially undeclared engineering students, with information on the various engineering disciplines to guide them toward choice of major. Lecturers describe research activities, how they made their own career choices, and indicate future opportunities. Recommended for all engineering science students and required for engineering science undeclared students. (F) Staff

98. Directed Group Studies for Lower Division Undergraduates. (1-4) Course may be repeated for credit. Format varies with offering. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Seminars for group study of selected topics, which will vary from year to year. Intended for students in the lower division. (F,SP)

Upper Division Courses

110. Introduction to Computers-Interdepartmental Studies. Four hours of lecture and ten hours of laboratory per week. Formerly Interdepartmental Studies 110: An introduction to computers and digital technology and culture. The conceptual foundations and fundamental hardware, software, structure and use of the Internet. Elements of programming for the World Wide Web. Students will complete a substantial programming project related to their academic interests. Students who have completed other "computer science service courses," at Berkeley, will receive at most one unit of credit for 110, and may receive none. For more information, see the note on "Computing Service Courses" in the departmental listing for "Electrical Engineering and Computer Sciences" in this catalog, and/or consult with the instructor. (F,SP) Staff

C111. Introduction to Networked Applications and Computing. (3) Three hours of lecture per week. Prerequisites: Upper division in good standing, and experience with personal computing and productivity applications. Any student who can successfully use a personal computer to author documents, browse the World Wide Web, etc. can successfully complete this course. Introduction to applications of networked computers, especially social, educational, and information management. Understanding of the networking, computer, and software infrastructure enabling and constraining these networked applications, with the goal of empowering the student to use these technologies effectively in their personal and professional life. Relationship of economic, and industry issues will be covered. (SP) Messerschmitt

115. Engineering Thermodynamics. (4) Students will receive no credit for Engineering 115 after taking Mechanical Engineering 105 or Chemical Engineering 141. Four hours of lecture per week. Prerequisites: Physics 7B, Math 54; Chemistry 1B recommended. Fundamental laws of thermodynamics for simple substances; application to flow processes and to nonreversible mixing. The thermodynamics of ideal gases and crystalline solids; chemical and materials thermodynamics; multiphase and multicomponent equilibria in reacting systems; electrochemistry. Sponsoring Departments: Chemical Science and Engineering and Nuclear Engineering. (F) Glaeser, Olander

117. Methods of Engineering Analysis. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 53, 54. Methods of theoretical engineering analysis; techniques for analyzing partial differential equations and the use of special functions related to engineering systems. Sponsoring department: Mechanical Engineering. (F) Staff

120. Principles of Engineering Economics. (3) Students will receive 2 units for 120 after taking Civil Engineering 167. Two hours of lecture and one hour of discussion per week. Prerequisites: Completion of 60 units of an approved engineering curriculum. Economic analysis of engineering design decisions making capital flows, effect of time and interest rate. Different methods of evaluation of alternatives. Minimum-cost life and replacement analysis. Depletion and taxes. Engineering economic analysis, processes and techniques, sensitivity analysis. Capital sources and their effects. Economic studies. (F,SP) Adler

124. Ethics and the Impact of Technology on Society. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Upper division standing. Formerly Letters and Science 124. This course focuses on the changing nature of technology and the complex ethical issues that are emerging as a result. These new issues relating to biology, biotechnology, information technology, nanotechnology, and nuclear technology. The nature of these issues, their ethical, legal, and social ramifications, and what our society values in relation to these issues are discussed. Philosophy, religion, and the natural and social sciences will be explored in relation to these issues. (SP) Hauser-Kastenberg, Kastenberg

128. Advanced Engineering Design Graphics. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Upper division standing. Formerly Interdepartmental Studies 128A-128B: 128A-128B recommended. 180A must be taken prior to taking 180B. This course sequence focuses on the concepts of computational design, using graphic formats and rhetorical strategies for formal technical reports, feasibility studies, abstracts, descriptions and instructions, proposals, letters, and memos. Practice in oral presentations to technical audiences; construction and delivery of capital sources and their effects. Economic studies. (SP) Frenklich, Packard

180A-180B. Computational Engineering Science Modeling and Simulation I/II. (4,4) Four hours of lecture per week. Prerequisites: Senior/Graduate standing in Engineering and Computer Science, 7 of 78; Equivalents: Mechanics 128A-128B: 170A-170B recommended. 180A must be taken prior to taking 180B. This course sequence focuses on the concepts of computational design, using graphic formats and rhetorical strategies for formal technical reports, feasibility studies, abstracts, descriptions and instructions, proposals, letters, and memos. Practice in oral presentations to technical audiences; construction and delivery of capital sources and their effects. Economic studies. (SP) Frenklich, Packard

180A emphasizes modeling and techniques, project planning, algorithm and software design, team and multidisciplinary interaction, illustrated with many small projects.

180B stresses project planning, management, modeling, simulation, visualization, and presentation, with team experience drawn from many areas, illustrated with small projects and a large semester-long team project. (F,SP) Verboncoeur

190. Technical Communication. (3) Three hours of lecture per week. Prerequisites: Upper division standing. Upper division technical writing. Principles of technical communication: analyzing one’s audience; organizing material; developing a clear, economical style; using graphic formats and rhetorical strategies for formal technical reports, feasibility studies, abstracts, descriptions and instructions, proposals, letters, and memos. Practice in oral presentations to technical audiences; construction and delivery of capital sources and their effects. Economic studies. (SP) Frenklich, Packard

191. Engineering Ethics. (3) Three hours of lecture and one discussion section per week. Prerequisites: Upper division standing in an engineering or science discipline, or consent of instructor. Formerly 191A. Ethical and cultural issues central to the practice of engineering. The ethics of issues associated with modern technology and the effect of technology on social, cultural, and economic systems. Environmental impact of engineering activities. The role of the engineer in controlling technology uses. Ethical and legal responsibilities of the engineering professional. Engineering codes of ethical conduct. Avoiding ethical conflicts in the workplace. (F,SP) Verboncoeur

193. California Engineer. (1) Course may be repeated once for credit. Three hours of laboratory per week. Must be taken on a passed/not passed basis. Work on the California Engineer magazine, in one or more of the following capacities: read candidate articles, edit articles, enter articles into UNIX computer system for typesetting, draw technical illustrations, photography, layout, page layout, post-page-up, write articles on assignment, consulting, advertising engineering. Models will proceed sequentially through problem statement, mathematical model, approximations and analytic solution, discrete model, object-oriented model, implementation and economic systems. Environmental impact of engineering activities. The role of the engineer in controlling technology uses. Ethical and legal responsibilities of the engineering professional. Engineering codes of ethical conduct. Avoiding ethical conflicts in the workplace. (F,SP) Verboncoeur
240. Fundamentals of Multiphase Flow in Earth Systems. (3) Three hours of lecture per week. Prerequisites: Graduate standing; Mathematics 53, 54, 110, or equivalent and Formerly Mineral Engineering 251. Fundamental physics and mathematics of multiphase, nonisothermal flow of immiscible fluids in porous media. Pore level characteristics of flow; invasion percolation in drainage and imbibition; description of capillary pressures and relative permeabilities in two and three phase flow; upscaling; method of coher- ence in the transition from the "micro" to the "macro" phase change. MATLAB used as the computing envi- ronment for all coursework. Sponsoring department: Civil and Environmental Engineering. (F) Patzek

253A-253B. Physics of Medical Imaging. (3,3) Cross-listed at UC San Francisco as Bioengineering 290A-290B and in six under- graduate interdisciplinary and supplementary laboratory sessions. Prerequisites: Under- graduate degree in physical science or engineering. Knowledge of differential equations and Fourier Trans- forms, or consent of instructor.

A. Interaction of radiation with matter, radiation detec- tion, medical image formation, radiographic instru- mentation, image quality, design of imaging systems. B. Dual-energy radiography, quantitative techniques, tomographic reconstruction, radiologic informatics, picture archiving and communication systems, image processing and analysis (1) what constitutes imaging practices in Sponsoring department: Engineering Interdisciplinary Studies. Offered odd-numbered years. (F,SP)

266A. Finite Difference Methods for Fluid Dynam- ics. (4) Three hours of lecture, three hours of labo- ratory, and one hour of voluntary discussion per week. Prerequisites: Mathematics 53 or 100B, and dynam- ics or numerical methods for differential equations, or consent of instructor. Formerly 266E. Application of finite difference methods to current problems of fluid dynamics. Compressible and incompressible Flow sponsoring department: Mechanical Engineering. (F) Marcus

C282. Charged Particle Sources and Beam Tech- nology. (3) Three hours of lecture per week. Prereq- uisites: Graduate standing or consent of instructor. Topics in this course will include the latest technol- ogy of various types of ion and electron sources, extraction and formation of charge particle beams, computer simulation of beam propagation, diagnos- tics of ion sources and beams, and the applications of beams in fusion, synchrotron light source, neutron generation, microelectronics, lithography, and medical therapy. This is a general accelerator technology and engineering course. It is intended for gradu- ate students in physics, electrical engineering, and nuclear engineering. Also listed as Nuclear Engineering C283. (F) Leung, Steier

290A. Introduction to Management of Technology. (3) Three hours of lecture/discussion per week. This course is designed to give students a broad overview of the main topics encompassed by management of technology. It includes the full chain of innovative activities beginning with research and development and extending through production and marketing. Why do many existing firms fail to incorporate new tech- nology in a timely manner? Each stage of innova- tion, we examine key factors determining the successful management of technology. What constitutes a suc- cessful technology strategy? The integrating course focus will be on the emergence of the knowledge economy and the strategic asset that will drive innovation and will involve both general readings and cases. The course also introduces students to Haas and COE faculty working in the relevant areas. (SP) Proctor

290B. Biotechnology: Industry Perspectives and Busi- ness Development. (2) Students will receive no credit for 290E after taking Master of Business Administration 290E. Three hours of lecture per week. The primary goal of this course is to provide upper-level students interested in the competitive and regulatory environment in the biotechnology industry. Students will be exposed to different disciplines or backgrounds are encouraged. (F,SP) Dornfeld

290C. Sustainable Manufacturing. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Sustainable manufacturing is a poorly understood idea and one that is not intu- itively connected to business value or engineering practice. This is especially true for the manufacturing aspects of most enterprises (tools, processes, and systems). This course will provide the basis for under- standing (1) what constitutes sustainable practices in for-profit enterprises; (2) how to practice and mea- sure continuous improvement using sustainability thinking, techniques, and tools for product and manufac- turing process design; and (3) the techniques for evaluating and measuring sustainability performance to internal and external audiences. Materi- al in the course will be supplemented by speakers with diverse backgrounds in corporate sustainability, environmental consulting, non-governmental organi- zations, and academia. Discussions of papers in the reader including case studies will be used to illustrate topics. A series of small projects is used throughout the semester and a final project is required, with students working individually or in small groups. Cross functional groups including students from different disciplines or backgrounds are encouraged. (F,SP) Hoover, Sareli

290E. Marketing for High Tech Entrepreneurs. (3) Students will receive no credit for 290E after taking Master of Business Administration 290E. Three hours of lecture per week. The primary goal of this course is to provide upper-level students interested in the competitive and regulatory environment in the biotechnology industry. Students will be exposed to different disciplines or backgrounds are encouraged. (F,SP) Dornfeld

290G. Two hours of lecture per week. This course seeks to make sense of, inter alia, the decline and recovery of U.S. high-technology industries, the evolution of innovation and technology strate- gies and policies in Western Europe and Asia, the historic and current roles of governments in shaping markets for high-technology goods, and the impact on business strategies and rates of development in early-stage capital markets. Our general approach views technological innovation and competition as dynamic processes that reflect previous choices made by firms and governments. Industries develop in markets that are international scope, often imperfectly competitive, and subject to influence by a variety of economic and political stakeholders. We will use an eclectic mix of theoretical, historical, and practical perspectives throughout the course in exam-
1. Opportunity Recognition: Technology and Entrepreneurship in Silicon Valley. (3) Three hours of lecture/discussion per week. This course is intended to provide the core skills needed for the identification of opportunities that can lead to successful, entrepreneurial high technology ventures, regardless of the individual's "home" skill set, whether technical or managerial. We examine in depth the approaches most likely to succeed for entrepreneurial companies as a function of technologies. Emphasis is placed on the special requirements for creating and executing strategy in a setting of rapid technological change and limited resources. This course is open to both MBA and engineering students (who enroll through the College of Engineering), and is particularly suited for those who anticipate founding or operating technology companies. (SP) Lasky

290P. Project Management. (2) Two hours of lecture/discussion per week. This course will provide you with a comprehensive view of the elements of modern project management, guidelines for success, and related tools. In organizations today, successful operations keep the organization alive and successful projects move it towards strategic objectives. A project is a one-time or infrequently occurring operation with a unique goal, limited lifespan, and limited resources. The fundamental concepts come from the field of operations management, but projects present special types of operations because of their intended focus, limited lives, constraints, and uncertainties. In organizations today, projects are many, diverse, and frequently overlapping. (SP) Staff

290S. Supply Chain Management. (3) Students will receive no credit for 290S after taking Master of Business Administration 248A or Evening & Weekend Master of Business Administration 248A. Three hours of lecture per week. This course involves the flows of materials and information among all of the firms that contribute value to a product, from the source of raw materials to end customers. Elements of supply chain management have been studied and practiced for some time in marketing, logistics, and operations management. We will attempt to integrate these different perspectives to develop a broad understanding of how to manage a supply change. This course will focus on effective supply chain strategies for companies that operate globally with emphasis on how to plan and integrate supply chain components into a coordinated system. You will be exposed to concepts and models important in supply chain planning with emphasis on key trade-offs and phenomena. This course will introduce and utilize key tactics such as risk pooling and inventory placement, integrated planning and collaboration, and information sharing. Lectures, Internet simulations, computer exercises, and case discussions introduce various models and methods for supply chain analysis and optimization. (F) Angelus

290W. Wireless Communications. (3) Three hours of lecture/discussion per week. In this course, students will analyze the role of regulatory, technological, economic, and market forces in shaping wireless industry structure, value chain, business and operating models, competitive dynamics, and barriers to entry. Special emphasis is placed on identifying new opportunities and understanding the challenges for startups and other new entrants. In the context of this course, wireless communications encompass voice, data, and video services offered over terrestrial and satellite networks. Given its size and relative impact, well over half of the course will be devoted to cellular markets and technologies. (SP) Moazzami

298A. Group Studies or Seminars. (1-6) Course may be repeated for credit. Variable. Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester. (F,SP) Staff

298B. Group Studies or Seminars. (1-6) Course may be repeated for credit. Variable. Must be taken on a satisfactory/unsatisfactory basis. Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester. (F,SP) Staff

300. The Teaching of Engineering. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Introduction to the theory and practice of teaching and learning in higher education in general and engineering in particular. The course will enable GSIs to select teaching methods that are appropriate to specific engineering courses and contexts. Topics in classroom and time management, effective assessment development, assessment, academic integrity, instructional technology, course design, and other topics of relevance are presented. (SP) Staff

Engineering—Joint Major Programs
(Advising and Curriculum Office, College of Engineering)
College of Engineering Student Affairs Office: 308 McLaughlin Hall, (510) 642-7594 coe.berkeley.edu/joint-majors

Overview of Programs
The joint major programs are designed for students who wish to undertake study in two major areas of engineering in order to qualify for employment in either field or for positions in which competence in two fields is required. These curricula include the core courses in each of the major fields. While they may require slightly increased course loads, they can be completed in four years. Both majors are shown on the student's transcript of record.

Admission directly to a joint major is closed to freshmen but open to junior transfer students. Students admitted as freshmen may apply to change to a joint major during specific times in their academic progress. See the College of Engineering—Joint majors web site at coe.berkeley.edu/joint-majors for complete details.

Students may prepare for a bachelor's degree in engineering in the following areas:
Bioengineering/Materials Science and Engineering; Electrical Engineering and Computer Sciences/Materials Science and Engineering; Electrical Engineering and Computer Sciences/Nuclear Engineering; Materials Science and Engineering/Mechanical Engineering; Materials Science and Engineering/Nuclear Engineering; Mechanical Engineering/Nuclear Engineering.

In addition to the joint major programs within the College of Engineering listed above, two joint major curricula involving the College of Engineering and the College of Chemistry are offered. These are:
(1) Chemical Engineering/Materials Science and Engineering; and (2) Chemical Engineering/Nuclear Engineering. Details on these curricula can be found in the College of Chemistry Announcement. Students must apply for admission to the College of Chemistry for these joint major programs.

Engineering—Undeclared
(Advising and Curriculum Office, College of Engineering)
College of Engineering Student Affairs Office: 308 McLaughlin Hall #1702, (510) 642-7594 coe.berkeley.edu/engineering-undeclared

Program Overview
The Engineering—Undeclared Program is for students who are interested in pursuing an engineering education but are undecided on a particular major within the college.

Students admitted to the program enjoy the benefit of an advising team comprised of a student affairs officer who works exclusively with undeclared students and faculty from each major. Together they help students in the program explore their academic interests, understand and complete requirements and select a major. The common first year engineering curriculum is supplemented with introductory seminars and courses are intended to generate enthusiasm for and develop a better understanding of the different engineering fields.

Students admitted into the program must declare a major by the end of their fourth semester, and if in good academic standing may choose from any
of the College of Engineering majors, including: bioengineering, civil engineering, computational engineering science, electrical engineering and computer sciences, engineering mathematics and statistics, engineering physics, environmental engineering science, industrial engineering and operations research, materials science and engineering, mechanical engineering, and nuclear engineering. For more information on these majors, see the corresponding sections of this catalog and the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement.

Admission to Engineering—Undeclared

Freshman applicants interested in applying to the Engineering—Undeclared Program should follow the procedures outlined in the “Undergraduate Education” and “College of Engineering” sections of this catalog. Junior transfer applicants may not apply to the program and must choose a specific major.

Historically, the Engineering—Undeclared Program admits only from the strongest applicants to the College of Engineering; admission to this program is generally more competitive than admission to other engineering majors. Applicants who know which field of engineering they wish to study should apply to that major.

Engineering Science (College of Engineering)

Program Office: 230 Bechtel Engineering Center #1708, (510) 642-3430.\nEmail: coe.engineering-science@berkeley.edu
Chair: Tarek Zohdi, Ph.D., zohdi@me.berkeley.edu

Programs for the Bachelor’s Degree

The undergraduate Engineering Science Program is multidepartmental and interdisciplinary. The majors consist of closely related fields of the natural sciences, mathematics, physics, and engineering. The majors offered within the Engineering Science Program prepare students especially for advanced graduate study in engineering and the natural sciences. The four engineering science majors include computational engineering science, engineering mathematics and statistics, engineering physics, and environmental engineering science.

Applicants at the freshman level may apply to any of the engineering science majors. Students will be advanced to the upper division in engineering science upon satisfactory completion of the lower division requirements.

For more information, see the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement.

General Curriculum Requirements for the Bachelor’s Degree

Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in this catalog. In addition, students must complete the requirements for the College of Engineering and one of the engineering science majors. Full details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement.

English (College of Letters and Science)

Undergraduate Office: 322 Wheeler Hall, (510) 642-3437.\nGraduate Office: 1 Wheeler Hall, (510) 642-4005.\nEmail: english.berkeley.edu

Professors
†Elizabeth A. Abel, Ph.D. Princeton University. Modern fiction
Charles F. Allert, Ph.D. University of North Carolina. 20th- century literary history of ideas
Ann Banfield, Ph.D. University of Wisconsin. Literary and linguistic theory
Michael A. Bernstein, Ph.D. Osaka University. 19th- and 20th-century poetics, literary theory, comparative literature
†Stephan Brown, Ph.D. Harvard University. Aesthetics, Renaissance and Early Modern English
Mitchell R. Brebner, Ph.D. SUNY Buffalo. American literature, poetry, and criticism
Ian Duncan, Ph.D. Yale University. The novel, British literature of 1750-1800, Scottish literature
Mary Caffrey, Ph.D. University of California, Berkeley. 19th-century British literature, Victorian novels
Cecil S. Giscombe, M.A. Cornell University. Poetry, essays, cross-cultural American writing, Canadian writing, travel writing
Dorothy Hale, Ph.D. University of California, Berkeley. American literature
Robert Hass, Ph.D. Stanford University. Poetry, poetry writing
Lyne Heijnin, B.A. Harvard University. Poetry writing, modernist and postmodern literature, American literature
Abdul JanMohamed, Ph.D. Brandeis University. Third World literature in English, African American fiction, colonial literature
Steven Justice, Ph.D. Princeton University. Late Medieval English and French
Victoria Kahn, Ph.D. Yale University. 17th-century literature, especially Milton
†Jeffrey Knapp, Ph.D. University of California, Berkeley. American literature
Donald A. McAuliffe, Ph.D. Rutgers University. 20th-century American literature and culture, theory and practice of fiction, American literature
D. A. Miller, Ph.D. Yale University. 19th-century British literature, theory and practice of fiction, American literature
Bharati Mukherjee, Ph.D. University of Iowa. Fiction writing
†Katherine O’Brien O’Keeffe, Ph.D. University of Pennsylvania. Old English language and literature
Joe Seidler, Ph.D. Stanford University. 19th- and 20th- century inter-American literature, Chicano/a literature
†Susan M. Schweik, Ph.D. Stanford University. Disability studies, modern poetry, American poetry, gender studies
George A. Staats, Ph.D. Princeton University. The novel, English literature, social and intellectual history of 1660-1820
Janet Turner, D.Phil. Oxford University. 17th- and 18th- century English and French literature, sexuality, gender, and literature
†Janet Adelman (Emerita), Ph.D. University of Delaware. Women’s studies
Paul J. Althaus (Emeritus), Ph.D. American Studies
Joel Altman (Emeritus), Ph.D. American Studies
Richard Altman (Emeritus), Ph.D. American Studies
Robert Bloom (Emeritus), Ph.D. American Studies
Carol Christ (Emerita), Ph.D. American Studies
John S. Coolidge (Emeritus), Ph.D. American Studies
†Frederick C. Condon, Ph.D. American Studies
Richard Feingold (Emeritus), Ph.D. American Studies
*Ron Loewinsohn (Emeritus), Ph.D. American Studies
†Anne Middleton (Emerita), Ph.D. History of Art
Charles Muscalus (Emeritus), Ph.D. American Studies
Alan Nelson (Emeritus), Ph.D. American Studies
John D. Niles (Emeritus), Ph.D. American Studies
James N. Oliver (Emeritus), Ph.D. American Studies
Morton D. Paley (Emeritus), Ph.D. American Studies
Carolyn Porter (Emerita), Ph.D. American Studies
Norman Rapoport (Emeritus), Ph.D. American Studies
Alain Renor (Emeritus), Ph.D. American Studies
†Hugh M. Richardson (Emeritus), Ph.D. American Studies
Peter D. Scott (Emeritus), Ph.D. American Studies
†Gardner D. Stout Jr. (Emeritus), Ph.D. American Studies
†Robert Tracy (Emeritus), Ph.D. American Studies
Alex Zwering (Emeritus), Ph.D. American Studies

Associate Professors
Julia Badar, Ph.D. University of California, Berkeley. The novel, comedy, American literature, women writers, film, modern British women writers
Stephen Best, Ph.D. Cornell University. 19th- and 20th-century American and African American literature and culture
John M. Bishop, Ph.D. Stanford University. The novel, 20th-century literature
Anne-Lise Fraden, Ph.D. Princeton University. 19th-century British literature, comparative literature
†Steven Goldberg, Ph.D. University of Pennsylvania. Romantic literature, literary theory
Mercul Gonzalez (Emeritus), Ph.D. American Studies
Andrew Griffin (Emeritus), Ph.D. American Studies
Kristin Hanson, Ph.D. Stanford University. Linguistics
†Kathryn Goodman, Ph.D. Yale University. 18th-century English literature, 18th-century British literature
†Michelle Goodwin, Ph.D. Yale University. 19th-century American literature
†Krishna Gupta, Ph.D. Yale University. Comparative literature
†Anne H. Howells, Ph.D. Yale University. 19th-century American literature
†Kathleen Ippolito, Ph.D. Yale University. Modernist literature, scholarly communication
†Katherine Irvin, Ph.D. Yale University. American literature, Victorian literature, women’s literature
†Janet James, Ph.D. Yale University. American literature
†Molly Keane, Ph.D. Yale University. American literature
†Kathleen Kennedy, Ph.D. Yale University. American literature
†Victoria Kahn, Ph.D. Yale University. American literature
†Kathryn Kizer, Ph.D. Yale University. American literature
†Laura Knauth, Ph.D. Yale University. American literature
†Karen Land, Ph.D. Yale University. American literature
†Sarah Land, Ph.D. Yale University. American literature
†James Land, Ph.D. Yale University. American literature
†Kathleen Leiter (Emerita), Ph.D. American Studies
†Jane Lampen (Emerita), Ph.D. American Studies
†Michaela Lemberg (Emerita), Ph.D. American Studies
†Elizabeth Luce (Emerita), Ph.D. American Studies
†Nancy Rouillard (Emerita), Ph.D. American Studies
†Carolyn Royce (Emerita), Ph.D. American Studies
†Nicole Schmitz (Emerita), Ph.D. American Studies
†Susan Schurman (Emerita), Ph.D. American Studies
†Deborah Schlussel (Emerita). American Studies
†Kathleen S. Weiss (Emerita), Ph.D. American Studies
†Sarah Wolf (Emerita), Ph.D. American Studies
†Audrey Writing (Emerita), Ph.D. American Studies

Assistant Professors
Nasima Azima, Ph.D. University of Oxford. 20th-century English and American literature
*Jennifer Moore, Ph.D. University of Michigan. British literature and cultural history of the English language. Writing courses offer training in both expository and creative writing.

Department Overview

The Department of English offers courses in literature, in language, and in writing. Our courses in literature have multiple foci: major authors, historical periods, genres, critical theories and methods, as well as cultural and multilingual studies. Courses in language offer instruction in both the history and the structure of the English language. Writing courses offer training in both expository and creative writing.

The major in English is designed to introduce students to the history of literature written in English, to acquaint them with a variety of historical periods and geographical and cultural regions of English language and writing, to create an awareness of methods and theories of literary and cultural analysis, and to provide continued training in critical
writing. Before declaring the major, students normally must have completed the Reading and Composition requirement of the college.

The core of the major consists of six courses: English 45A-45B-45C, a course in Shakespeare, an upper division course in literature before 1800, and an upper division seminar: English 190. English courses 45A-45B-45C are an intensive survey of literature in English from Chaucer through the 20th century. Reading British, American and Anglophone writing. Together with the required course in Shakespeare, this sequence provides a foundation on which to build more specialized upper division coursework in accord with the recommended areas of concentration described under “Major Program” below. Prerequisites, as well as a detailed description of major requirements, may also be found there.

Entry-Level Writing Requirement. Students must have fulfilled the Entry-Level Writing requirement before taking any course in the Department of English. For further information, see the College Writing listing in the “Index” of this catalog or online at berkeley.edu/catalog/undergrad/requirements.html.

Note: Specific topics in the following staff courses vary from semester to semester: English 24, 31AC, 39, 84, 102, 133T, 135AC, C136, 137T, 138, 139, 152, 165, 165AC, 166, 168AC, 170, 171, 172, 173, 174, 176, 177, 180, 180R, 180Z, 190, 201A, 201B, 203, and 250. Offerings and instructors for these and all other scheduled courses are listed each semester in the department’s “Announcement of Classes” at english.berkeley.edu/courses/schedule.html.

Many of the courses listed below have limited enrollments.

Major Program

The English major consists of no fewer than 12 courses (not including R1A-R1B), of which at least seven must be upper division courses. Six of these must be the core courses noted above; the remaining courses are electives. In order to focus their literary study at the upper division level, students are encouraged to choose an area of concentration; see II.C. for a list of the 12 areas of concentration.

Major Requirements

I. Foundational Courses. All majors must take English 45A-45B-45C (or upper division paired equivalents), a course in Shakespeare, two upper division courses (one approved by a major adviser) plus one of the following: Shakespeare courses: English 17, 117A, 117B, 117J, or 117S. All these required courses must be taken for a letter grade. Students may declare the major once they have taken at least 30 units and completed these major requirements:

- 45A or 45B;
- and
- one of the following: Shakespeare (see list above), 45A, 45B, or 45C.

II. Upper Division Courses. Of the 12 courses required for the major, at least seven must be upper division.

- Pre-1800 Course. One upper division course in British, American, or Anglophone literature from an historical period before 1800 must be taken. Standard course offerings that meet this requirement include English 105, 110, 111, 112, 114A, 114B, 115A, 115B, 118, 119, 120, 125A, and 130A; the requirement may not be fulfilled by English 150T or any Shakespeare course. (Note: Certain designated sections of English 190 can be used to satisfy the pre-1800 requirement.)

- Seminars. One upper division seminar—English 190 (Research Seminar)—is required and must be taken for a letter grade.

Note: With the approval of a major adviser, students may count up to two upper division courses in departments other than English toward the major. The request for course approval should be grounded in a compelling intellectual rationale, one that explains how the student’s work for the English major will be enhanced through the inclusion of the particular outside course the student wishes to take. There is no pre-approved list of courses. For appropriate courses outside English, consult the listing for comparative literature, ethnic studies, foreign language departments, history, history of art, linguistics, philosophy, rhetoric, women’s studies, etc. Students gaining 8 units of credit toward the major from education abroad programs normally will not be permitted to count additional upper division coursework from other UC Berkeley departments.

- Areas of Concentration. The department recommends that at least three upper division courses fall within one of the areas of concentration outlined below or within an area of concentration designated by the student in consultation with a faculty adviser. The area of concentration is not a requirement for the major, but it is recommended as a way of organizing upper division coursework.

- Medieval Period (literature in English through 1485)
- Early Modern Period (Renaissance through Milton)
- Enlightenment (late 17th through early 19th century)
- Nineteenth Century (through early Modernism)
- Twentieth Century (from Modern to Contemporary)
- Anglophone and Multicultural Studies
- Genre Studies (Narrative, Poetry, or Drama, for example)
- Sexual Identities/Gender Studies
- Literary Theory
- Folklore, Popular Culture, and Cultural Theory
- Linguistics/The English Language
- Disability Studies

For a description of the areas and a list of courses normally required in each, please consult the official description of the major, available at the department office and on our web site.

Additional Notes

Honors Program. H195A-H195B is a two-semester course, graded IP at the end of the first semester. Honors in English cannot be granted without the successful completion of this course. Students who take H195A-H195B may choose to waive their English 190 requirement. H195A is organized as a course in literary criticism working toward the formation of a thesis for presentation at the end of the Fall semester. H195B will include regular meetings with the thesis adviser plus small group meetings with the H195 instructor. During the second semester each student will write an honors thesis of 40-60 pages. Students are encouraged to take this course during the 1st year of their sophomore year. The course is comparable in coverage, rigor, and substance to a Berkeley upper division course. Students may gain 1-2 units of credit toward the major with the approval of a faculty adviser on a case-by-case basis. Students should submit documentation (e.g., course descriptions, syllabi, completed exams, papers, and written work) to demonstrate that the education abroad course is comparable in coverage, rigor, and substance to a Berkeley upper division course. Students may gain 8 units of credit or more toward the English major for EA courses. English majors will not be permitted to count additional upper division coursework from other Berkeley departments toward the major. Two literature courses in a foreign language will be routinely counted toward the major, if the major adviser determines that the courses meet UC Berkeley academic standards.

Internships. Students may apply to a faculty adviser to receive course credit (either as a 99 or 199) for an internship. No more than 2 units will be awarded on a passed/not passed basis. Students must provide official documentation about the internship and, upon completion of this program, a statement from the internship director that describes the duties that the student performed. In addition, students must produce critical or creative writing on a topic related to the internship. This writing will be assessed by a Department of English faculty member who has agreed in advance of the internship to supervise the student. This faculty member will be the instructor of record for the 99/199.

Online Extension Courses. Only one UC Berkeley Extension online course normally may be counted toward the major. No UC Berkeley Extension online course may be used to satisfy the core requirements for the major: 45A/45B/45C (or their upper division equivalents); Shakespeare; 190; or H195A-H195B. Only one UC Berkeley Extension online course normally may be counted toward the major, UC Berkeley Extension online courses must be comparable in coverage, rigor, and substance to department courses. Students seeking to count a UC Extension online course toward the major must submit online course materials and other relevant documentation to a Department of English major adviser or to the department’s Director of Undergraduate Studies for assessment.

Visit Us Online. You will find course descriptions and book lists, faculty office hours, and information about honors, the minor, and transfers on the Department of English’s web site at english.berkeley.edu. Further details about the major are available at the department office.

Minor Program

Students in the College of Letters and Science may complete one or more minors of their choice, or may pursue one or more minors administratively distinct from their major. English majors may not complete a minor in the Department of English.

The minor in English requires the completion of at least five upper division courses taken for a letter grade, of which at least three must be taken at Berkeley, with a GPA of at least 2.0. For the minor, it is strongly recommended that at least three of the five courses fall within one of the
Graduate Program

Students are admitted to graduate studies only in the Fall semester. To GRE General Test and Subject Area Test in Literature are required.

The Ph.D. Program. The Ph.D. program requires successful completion of 10 letter-graded courses, of which at least seven will be in English, to be distributed as follows: English 200, an introductory course in literary scholarship, normally taken in the first semester of graduate study; one course at the graduate level in each of four historical fields: Medieval through 16th Century (British; 17th and 18th Century (British and/or American); 19th Century (British, American, and/or Anglophone); 20th Century (British, American, and/or Anglophone); one course organized in terms other than chronological coverage of English or American literature (e.g., theory, special problems, minority discourse). At least one of these courses must be a 250 seminar, requiring a substantial piece of writing. In addition, students must take English 302 (The Teaching of Composition and Literature). The foreign language requirement must be met, through coursework or examination, by demonstrating advanced knowledge in one, or proficiency in two, approved language(s). The balance of the Ph.D. program includes passing a two-hour oral examination, a prospectus conference, and a dissertation. The normative time for completing the doctoral program is six years.

Prospective students are urged to undertake substantial coursework in English and American literature, as well as to gain a solid background in foreign languages. Prospective applicants should request additional information about program requirements and application procedures from the English Graduate Office, 319 Wheeler Hall.

The M.A. Degree. The Department of English does not offer a separate M.A. program. Students working toward the Ph.D. may, however, receive an M.A. degree after fulfilling the appropriate requirements.

Courses in Writing

Note: Courses in writing require individual conferences as part of the expected student workload.

Some instructors in courses in the 43 and 143 series may offer their classes on a passed/not passed basis only. Students will find information about the grading basis of a specific class in these series in the English Department’s “Announcement of Classes,” available at pre-enrollment.

Enrollment in most writing classes is limited; consult the English Department’s “Announcement of Classes” for application procedures for these courses.

Lower Division Courses

R1A-R1B. Reading and Composition. (4-4) Three hours of lecture per week. Prerequisites: UC English Level Writing Requirement or UC Analytical Writing Placement Exam. R1A or equivalent course is prerequisite to R1B. Formerly 1A. Training in writing expository prose. A. Instruction in expository writing in conjunction with reading literature. Satisfies the first half of the Reading and Composition requirement.

B. Further instruction in expository writing in conjunction with reading literature. Satisfies the second half of the Reading and Composition requirement.

43A. Introduction to the Writing of Short Fiction. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. A workshop course intended for students who have recently begun to write fiction or who have not previously taken a course in creative writing.

43B. Introduction to the Writing of Verse. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. A workshop course intended for students who have recently begun to write verse or who have not previously taken a course in creative writing.

R50. Freshman and Sophomore Studies. (4) Three hours of lecture per week. Prerequisites: R1A or equivalent. Writing in connection with the study of a work of literature; fulfills the second half of Reading and Composition requirement. Highly recommended for prospective English majors who have not yet taken R1B.

Courses in Literature

Students in literature courses are expected to devote an average of nine hours per week to class preparation.

Lower Division Courses

17. Shakespeare. (4) Three hours of lecture per week. Lectures on Shakespeare and reading of his best works.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Must be taken on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, with topics varied from department to department and semester to semester.

101. The History of the English Language. (4) Three hours of lecture per week. The history of the English language from its Indo-European roots through its Old, Middle, and Early Modern periods, as preserved in the literary heritage, to its different forms in use throughout the world.

102. Topics in the English Language. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Topics vary from semester to semester.

Courses in Literature

Students in literature courses are expected to devote an average of nine hours per week to class preparation.

Lower Division Courses

141. Modes of Writing (Exposition, Fiction, Verse, Etc.). (4) Course may be repeated once for credit with different instructor. Three hours of lecture per week. Prerequisites: R1A-R1B or equivalent. Writing in connection with reading in recent English literature and its continental background.

143A. Short Fiction. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A seminar in writing short stories.

143B. Verse. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A seminar in writing poetry.

143E. Playwriting. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A seminar in playwriting.

143N. Prose Nonfiction. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A workshop course intended for students to the basic intellectual tools of environmental science; and examines how tools of environmental science; investigates ways the human relationship to nature has been imagined in literary and philosophical traditions; and examines how tools of scientific and
literary analysis, scientific method, and imaginative thinking can clarify what is at stake in environmental issues and ecological citizenship. Satisfies the Biological Science and Philosophy and Values breadth requirements in the College of Letters and Science. Also listed as Undergrad Interdisciplinary Studies C12 and Environ Sci, Policy, and Management C12.

(F) Sposato

80K. Children's Literature. (4) Three hours of lecture per week. The study of selected works written for children.

84. Sophomore Seminar. (1-2) Course may be repeated for credit. One hour of lecture and one hour of discussion per week.

95. Other Voices: Multicultural Literary Perspectives. (2) Course may be repeated for credit. Three hours of lecture per week. Must be taken on a passed/not passed basis. This course will enroll students to the literary study currently being undertaken by English department faculty interested in issues of race, class, gender, and ethnicity, and the formations of minority discourse. Each week a scholar or writer will lecture on literary study that reflects cultural and racial concerns. Upper division English majors will lead discussion groups focusing upon the methods advocated in the lecture and on various readings. This course does not satisfy major requirements.

Upper Division Courses

105. Anglo-Saxon England. (4) Three hours of lecture/discussion per week. Instruction in the basic elements of the Old English language with analysis of literary and cultural issues relating to the formative period of the English nation. (Undergraduates who pass 105 with a grade of B+ or higher, or with permission of the 205B instructor, are eligible to enroll in 205B, Beowulf.)

C107. The English Bible as Literature. (4) Three hours of lecture per week. Formerly 107. Introduction to the English Bible treated as a literary work. Also listed as Religious Studies C119.

110. Medieval Literature. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Development of literary form and idiom throughout the Christian West from the first to the 15th century.

111. Chaucer. (4) Three hours of lecture per week. Lectures on the complete works of Chaucer and some of his contemporaries.

112. Middle English Literature. (4) Three hours of lecture per week. Middle English literature exclusive of Chaucer studied in the original language.

114A-114B. English Drama. (4;4) Three hours of lecture per week.

A. English drama to 1603.

B. English drama from 1603 to 1700.


B. Literature of the 17th century.

117A-117B. Shakespeare. (4;4) Three hours of lecture per week. A chronological survey of Shakespeare's career.

117J. Shakespeare. (4) Three hours of lecture per week. 

Prerequisites: Consent of instructor. Study of selected plays, with practice in various critical approaches, e.g., establishing text, relation to source, changing concepts of comedy and tragedy, influence of theatrical conditions on technique.

117S. Shakespeare in the Theatre. (4) Three hours of lecture per week. Lectures on Shakespeare and reading of his best works.

117T. Shakespeare in the Theatre. (4) Three hours of lecture per week. Prerequisites: Offered in conjunction with as a sequel to 117S or 117A-117B. The interrelation of Elizabethan plays and stage practices. Classroom exercises, written assignments, and a final examination. The course will usually culminate in the performance of a play.

118. Milton. (4) Three hours of lecture per week. Lectures on and discussion of Milton's major works.

119. The Augustan Age. (4) Three hours of lecture per week. Lectures on and discussion of Dryden, Swift, Pope, and some of their contemporaries.

120. Literature of the Later 18th Century. (4) Three hours of lecture per week. Lectures on and discussion of later 18th-century British literature.

121. Romantic Period. (4) Three hours of lecture per week. Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and contemporaries.

122. Victorian Period. (4) Three hours of lecture per week. Literature of the Victorian period with an emphasis on poetry and nonfiction prose.


125C. The European Novel. (4) Three hours of lecture per week. Lectures on and discussion of major European novels.


125E. The Contemporary Novel. (4) Three hours of lecture per week. Important contemporary novels, some of which may be read in translation.


127. Modern Poetry. (4) Three hours of lecture per week. British and American poetry: 1900 to the present.

130A. American Literature: Before 1800. (4) Three hours of lecture per week. Lectures on and discussion of the major writers of the early American period.

130B. American Literature: 1800-1865. (4) Three hours of lecture per week. Lectures on and discussion of the major texts of the American Renaissance.

130C. American Literature: 1865-1900. (4) Three hours of lecture per week. Lectures on and discussion of American literature from the Civil War through 1900.


133A. African American Literature and Culture Before 1917. (4) Three hours of lecture per week. Major literary and cultural texts in the African American tradition from origins through World War I.

133B. African American Literature and Culture Since 1917. (4) Three hours of lecture per week. Major literary and cultural texts in the African American tradition from the Harlem Renaissance through the 20th century.

133T. Topics in African American Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Topics may vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

134. Contemporary Literature. (4) Three hours of lecture per week. Lectures on and discussion of selected works written since the Second World War.

135AC. Literature of American Cultures. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of the ethnic diversity of American literature. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicanos/Latinos, and European Americans. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" well before the beginning of the semester for details. This course satisfies the American Cultures requirement.

C136. Topics in American Studies. (4) Course may be repeated for credit with different topic and consent of instructor. Three hours of lecture per week. A course on the intellectual, cultural, historical, and social backgrounds to American literature. Topics will vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

137A. Chican(o) Literature and Culture to 1910. (4) Three hours of lecture per week. Major literary and cultural texts in the Chican(o) tradition from origins through the Mexican Revolution of 1910.

137T. Topics in Chican(o) Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Topics in Chican(o) literature and culture.

138. Studies in World Literature in English. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. An examination of various aspects of the modern literature written in English in Africa, the Caribbean, India, and Southeast Asia. Topics will vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

139. The Cultures of English. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Major literary and cultural works in English in Africa, the Caribbean, India, and Southeast Asia; and the writings of specific groups or distinctive cultures in the English-speaking world, including the U.S. and the British Isles. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

152. Women Writers. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Topics will vary from semester to semester.

160. Methods and Materials of Literary Criticism. (4) Three hours of lecture per week. An introduction to issues in literary criticism with emphasis on application of principles and methods to selected literary texts.

161. Introduction to Literary Theory. (4) Three hours of lecture per week. This class will focus on literary theory.

165. Special Topics. (4) Course may be repeated for credit with different topic. Three hours of seminar per week. Designed primarily for English majors. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

165AC. Special Topics in American Cultures. (4) Course may be repeated for credit with different topic. Three hours of seminar per week. Designed primarily for English majors. Study of a special topic related to
the diversity of the United States. Topics vary from semester to semester. Students should consult the department’s "Announcement of Classes" for offerings well before the beginning of the semester.

166. Special Topics. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Topics vary from semester to semester. Students should consult the department’s "Announcement of Classes" for offerings well before the beginning of the semester. This course satisfies the American Cultures requirement.

166AC. Special Topics in American Cultures. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of a special topic. Course may be repeated for credit with different topic. Three hours of lecture per week. Study of a special topic. Course may be repeated for credit with different topic.

170. Literature and the Arts. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study in the relationships of literature in English to the arts.

171. Literature and Sexual Identity. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Sexual identity in literature in relation to thematics, literary convention, psychology, and the particular politics and sociology of individual cultures. The course may range broadly over Western literature and concentrate on one historical period.

173. The Language and Literature of Films. (4) Course may be repeated for credit with different topic. Three hours of lecture per week plus film viewing. Study of film as a mode of representing reality; cinematic techniques and the "language" of film. Lectures, discussions, and film viewings.

174. Literature and History. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Topics will vary from semester to semester.

175. Literature and Disability. (4) Three hours of lecture per week. Studies of the relationships among literature, culture, and "disability." The course may range broadly or concentrate on one historical period, genre, or issue.

176. Literature and Popular Culture. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of the relationships of literature in English to popular culture.

177. Literature and Philosophy. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of representative forms of folklore and oral literature among the English-speaking people of the British Isles and North America.

179. Literature and Linguistics. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of representative forms of folkloric and oral literature among the English-speaking people of the British Isles and North America.

180A. Autobiography. (4) Three hours of lecture per week. Lectures on and discussion of autobiographical forms.

180E. The Epic. (4) Three hours of lecture per week. Reading and discussion of epics, considering their cultural and historical contexts, the nature of their composition, and the development of the form.

180H. Short Story. (4) Three hours of lecture per week. Lectures on and discussion of the form of the short story.

180L. Lyric Verse. (4) Three hours of lecture per week. Study of lyric forms and techniques.

180N. The Novel. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of the novel as a literary genre, its formal characteristics, its cultural functions. Topics may vary from semester to semester.

180R. The Romance. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of the romance as a literary genre. Topics may vary from semester to semester; focus may be historical or restricted to a particular period (e.g., medieval, modern).

190. Research Seminar. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Research seminar and designed for upper-division English majors. Intensive examination of critical approaches, literary theory, or a special topic in literary and cultural studies. Topics vary from semester to semester. Students should consult the department’s "Announcement of Classes" for offerings well before the beginning of the semester. (F,SP) Staff

Honor and Tutorial Courses

Lower Division Courses

98. Directed Group Study for Freshmen and Sophomores. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing. Group study in a field that may not coincide with that of any regular course and must be specific enough to enable students to write essays based upon their studies.

99. Independent Study. (1-4) Course may be repeated for credit. Independent. Must be taken on a passed/not passed basis. Prerequisites: Open to sophomore students with an overall G.P.A. of not less than 3.3. Meetings to be arranged. Reading and regular conference with the instructor in a field that shall not coincide with that of any regular course and shall be specific enough to enable students to write essays based upon their studies. (F,SP)

Upper Division Courses

H195A-H195B. Honors Course. (4) Three hours of lecture per week. Credit and grade to be awarded based on completion of sequence. Prerequisites: Open only to senior English major honors candidates (i.e., students with an overall G.P.A. of 3.51 or higher and a GPA of 3.65 or higher in courses taken at Berkeley in the major). Consent of instructor is required. This is a two-semester course, graded IP at the end of the first semester. During the second semester, each student will write an honors thesis. Completion of the thesis is required. Students may repeat the course.

199. Directed Group Study. (1-4) Course may be repeated for credit. Meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Open to students who have completed 12 units of upper-division English with an average grade of not less than B. Enrollment is restricted by university regulations. Group study in a field that shall not coincide with that of any regular course and shall be specific enough to enable students to write essays based upon their studies.

199. Supervised Independent Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Independent. Must be taken on a passed/not passed basis. Prerequisites: Open to students who have completed 12 units of upper-division English with an average grade of not less than B. Meetings to be arranged. Enrollment is restricted by university regulations. Reading and conference with the instructor in a field that shall not coincide with that of any regular course and shall be specific enough to enable students to write essays based upon their studies.

201A. Topics in the Structure of the English Language. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week.

201B. Topics in the History of the English Language. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week.

202. History of Literary Criticism. (4) Three hours of lecture per week.

203. Graduate Readings. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Open to advanced undergraduates, with the consent of the instructor. Graduate lecture courses surveying broad areas and periods of literary history, and directing students in wide reading. Offerings vary from semester to semester. Students should consult the department’s "Announcement of Classes" for offerings well before the beginning of the semester.

205A. Old English. (4) Three hours of lecture per week. Prerequisites: Open to undergraduates with the consent of the instructor.

211. Chaucer. (4) Three hours of lecture per week. Discussion of Chaucer’s major works.

212. Readings in Middle English. (4) Three hours of lecture per week. Rapid reading of selections in Middle English from the 12th century through the 15th.

217. Shakespeare. (4) Course may be repeated for credit. Three hours of lecture per week. Discussion of selected works of Shakespeare.

218. Milton. (4) Three hours of lecture per week. Discussion of Milton’s major works.

243A. Fiction Writing Workshop. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor, normally in consultation with the instructor. A writing workshop in fiction for graduate students.

243B. Poetry Writing Workshop. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor, normally in consultation with the instructor. A writing workshop in poetry for graduate students.

246. Graduate Proseminars. Three hours of lecture per week. Seminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

246C. Renaissance: Sixteenth century (excluding, or at least not prominently featuring, Skakespeare). (4)

246D. Renaissance: Seventeenth century through Milton. (4)

246E. Restoration and early 18th century. (4)

246F. Later 18th century. (4)

246G. Romantic. (4)

246H. Victorian. (4)

246I. American to 1855. (4)

246J. American 1855 to 1900. (4)

246K. Literature in English 1900 to 1945. (4)

246L. Literature in English 1945 to Present. (4)
Environmental Design
(College of Environmental Design)

Undergraduate Office: 232 Wurster Hall, (510) 642-0832
ced.berkeley.edu
Dean: Jennifer Wolch, Ph.D.
Associate Dean for Undergraduate Studies:
C. Greig Crysler, Ph.D.

Overview

The College of Environmental Design combines in a single academic unit professional instruction in architecture, city and regional planning, landscape architecture, and environmental planning, along with related fields and advanced graduate instruction in urban and regional planning.

Undergraduate degree programs in architecture, landscape architecture, and environmental planning are professional preparation programs that combine general education, basic skills, and knowledge in the professional fields, with a broad introduction to the built and natural environments. All three departments offer undergraduate minor programs that are open to students majoring in other fields. No undergraduate major or minor programs are professionally accredited by their respective professions. At the graduate level, each department offers the professionally accredited master’s degree program.

An undergraduate major in architecture or landscape architecture is not a prerequisite for admission to graduate study in architecture or landscape architecture. Likewise, an undergraduate major in urban studies is not a prerequisite for admission to graduate study in city and regional planning.

Degree Requirements. The A.B. degree programs in the college require the completion of 120 units. Please see www.ced.berkeley.edu/advising/ under-degrees.

Minor Programs. The College of Environmental Design offers several minors. Minors consist of at least five upper division courses as an optional program with two objectives: (1) to encourage coherence in coursework taken outside the major, and (2) to give recognition to the basic knowledge required in the minor. Completion of the minor requires at least five upper division units, with a minimum of 12 semester units in environmental design, ecological design, and social and cultural factors in environmental design.

The degree programs in architecture, city and regional planning, and landscape architecture can be found in those sections of this catalog, as well as on the college’s web site at www.ced.berkeley.edu.

Graduate Programs

Architecture, City and Regional Planning, and Landscape Architecture and Environmental Planning each offer accredited professional master’s degree programs that serve as the basic credential for professional practice in the respective fields. The departments also have concurrent and joint degree programs that combine professional degrees in two fields either within the college or with other professional schools. An M.A. degree in design is offered for a very few students, and an interdisciplinary program offers a master’s degree in design.

The three departments have advanced graduate programs leading to the Ph.D. degree for students who have the capacity to engage in research and teaching. A research M.S. degree in architecture is also available. These programs have limited enrollments and are not regarded as advanced degrees for professional practice.

An undergraduate major in architecture or landscape architecture is not a prerequisite for admission to graduate study in these fields. Likewise, an undergraduate major in urban studies is not a prerequisite for admission to graduate study in city and regional planning.

For further information, see www.ced.berkeley.edu/ college/academics/programs.

Organizational Units

Architecture
Department Office: 232 Wurster Hall, (510) 642-4942
Graduate Office: 570 Wurster Hall, (510) 642-5277
Interim Chair: Gail S. Brager, Ph.D.

City and Regional Planning
Department Office: 228 Wurster Hall, (510) 642-3256
Graduate Office: 228 Wurster Hall, (510) 643-9440
Chair: Karen Christensen, Ph.D.
Landscape Architecture and Environmental Planning

Department Office: 202 Wurster Hall, (510) 642-40-4022
Graduate Office: 206 Wurster Hall, (510) 642-2965

The college faculty has established several courses as a core of lower division work that is prerequisite to the study of the various design courses offered by the departments. In addition, certain upper division courses that embrace the interests of more than one department have similar standing as environmental design issues, rather than departmental offerings. Though these courses are typically staffed by more than one department, they are administered by only one. For information regarding ENV DES 1, 11A, 11B, 101, 105, 169A, 169B, or 195, contact the Department of Architecture. For information regarding ENV DES 104, 134, or 135, contact the Department of Landscape Architecture and Environmental Planning. ENV DES 201, 251, 252, and 253 are part of the Master of Urban Design degree. For information about these courses, please contact the Graduate Division department of Landscape Architecture and Environmental Planning.

For information on the Master of Urban Design degree, see the “Urban Design” section of this catalog.

Lower Division Courses

1. People and Environmental Design. (3) Students will receive credit for 1 after taking 4. Three hours of lecture and one hour of discussion per week. Enviro- ronmental design and environmental design. Survey of relationships between people and environments, designed, and non-designed. Emphasis on activism and sustainability. Interpretations of architecture, landscapes and urban planning, and introduction to their literature and professional practices. (F,SP) Staff

10. The Literature of Space. (3) Three hours of lecture and one hour of discussion per week. The course, comprised of lectures and readings that conceptually frame design thinking, is intended for students inclined toward the designed fields, and for students in the humanities as an introduction to the cultural and phenomenological aspects of designed space. While some of the material will be presented, generally essays related to life experience. Brief readings and discussions during each class, along with weekly writing assignments of 3-5 pages of prose will illustrate the skills involved in the craft of writing. (F) Litchez

10B. Writing about Environmental Design: Longer Compositions. (2-4) Course may be repeated once for credit. Three hours of laboratory per week and one-half hour tutorial every other week. Prerequisites: English 1B and consent of instructor. Formerly 101. An intensive workshop for students interested in writing about architecture, landscape, and the built environment. Recognizing that under- graduates take this course representative of students in departments outside as well as within the College of Environmental Design, assignments are touchstones for students of different disciplines to bring their current projects to a level of academic discourse about envi- ronmental design. Weekly assignments include prose readings, generally essays related to life experience. (SP) Roy

101A. Writing about Environmental Design: Short Compositions. (2-4) Course may be repeated for credit. Three hours of laboratory per week and one-half hour tutorial every other week. Prerequisites: English 1B and consent of instructor. Formerly 101. This course may serve as an addendum to 101A: Short Compositions. Enrolled students are required to have an academic advisor. The objective of the course is to assist with this process by developing a topic and constructing a research agenda by which the topic is explored and developed as prose. Students will be assigned critiques and writing exercises to complete within a support group which is both critical and encouraging of the individual effort. Topics are individually chosen but refined in concert with the instructor to ensure that the student's objectives can be satisfied within the semester. (SP) Litchez

105. Ecological Design. (4) One and one-half hours of lecture, one and one-half hours of discussion, and three hours of studio per week. Prerequisites: 11A, 11B and Arch 100A. Design problems from an eco- logical perspective. Design studies of relationships among ecosystem, energy, and resource flows, human social and cultural values, and technological variables as they interact to produce the built environment. Staff

C169A. American Cultural Landscapes, 1600 to 1900. (4) Three hours of lecture and one hour of dis- cussion per week. Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings—houses, highways, farms, factories, stores, recreation areas, malls, city districts, and regions. Encourages students to read landscapes as records of past and present social relations and to speculate for themselves about cultural meaning. Also listed as American Studies C112A and Geography C160A. (F) Groth

C169B. American Cultural Landscapes, 1900 to Present. (4) Three hours of lecture and one hour of discussion per week. Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings—houses, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations, and to speculate for themselves about cultural meaning. Also listed as American Studies C112B and Geography C160B. (SP) Groth

11A. Introduction to Visual Representation and Drawing. (3) Three hours of lecture and 12 hours of studio. Three prerequisites: 1 or 4, Introductory studio course: theories of representation and the use of several visual means, including free hand drawing, to analyze and convey ideas regarding the environment. Contour, scale, perspective, color, tone, texture, and design. (F,SP)

11B. Introduction to Design. (4) Three hours of lecture, six hours of studio, and one hour of seminar per week. Prerequisites: 11A. Introduction to design concepts, conventions of graphic representation and model building as related to the study of architecture, landscape architecture, urban design, and city planning. Drawing in plan, section, elevation, axonometric, and perspective. Design projects addressing concepts of order, site analysis, scale, structure, rhythm, detail, culture, and landscape. (F,SP)

Upper Division Courses

100. The City: Theories and Methods in Urban Studies. (4) Three hours of lecture, one hour of dis- cussion, and three to four hours of reading, analysis, and research per week. This course is concerned with the city as a whole. It is devoted to the city as a field of urban studies. In this course, it introduces the key ideas, debates, and research genres of the inter- disciplinary field of urban studies. In other words, this is simultaneously a “great cities” and “great theories” course. Its purpose is to train students in critical analysis of the socio-spatial formations of their lived world. (SP) Roy

101A. Writing about Environmental Design: Short Compositions. (2-4) Course may be repeated for credit. Three hours of laboratory per week for 10 weeks and one-half hour tutorial every other week. Prerequisites: English 1B and consent of instructor. Formerly 101. An intensive workshop for students interested in writing about architecture, landscape, and the built environment. Recognizing that under- graduates take this course representative of students in departments outside as well as within the College of Environmental Design, assignments are touchstones for students of different disciplines to bring their current projects to a level of academic discourse about envi- ronmental design. Weekly assignments include prose readings, generally essays related to life experience. (F) Litchez

10B. Writing about Environmental Design: Longer Compositions. (2-4) Course may be repeated once for credit. Three hours of laboratory per week and one-half hour tutorial every other week. Prerequisites: English 1B and consent of instructor. Formerly 101. This course may serve as an addendum to 101A: Short Compositions. Enrolled students are required to have an academic advisor. The objective of the course is to assist with this process by developing a topic and constructing a research agenda by which the topic is explored and developed as prose. Students will be assigned critiques and writing exercises to complete within a support group which is both critical and encouraging of the individual effort. Topics are individually chosen but refined in concert with the instructor to ensure that the student's objectives can be satisfied within the semester. (SP) Litchez

Environmental Health Sciences

(School of Public Health, Interdepartmental Graduate Groups)

Department Office: 760 University Hall, (510) 643-5160

Professor

John Balmes, M.D. (Public Health)
John Casida, Ph.D. (Environmental Science, Policy, and Management)
Brenda Eskernazi, Ph.D. (Public Health)
Katharine Hammond, Ph.D. (Public Health)
James Hunt, Ph.D. (Civil and Environmental Engineering)
Catherine Koshland, Ph.D. (Public Health)
William Nazaroff, Ph.D. (Civil and Environmental Engineering)
James Robinson, Ph.D. (Public Health)
Allen Smith, M.D. (Public Health)
Kirk Smith, Ph.D. (Public Health)
Marty Smith, Ph.D. (Public Health)
Robert Spear, Ph.D. (Public Health)
Taihara, Ph.D. (Public Health)
Edward Wei (Emeritus), Ph.D.

Associate Professor

Michael Jerrett, Ph.D. (Public Health)

Affiliated Professor

David Rempel, M.D. (University of California, San Francisco)

Adjunct Faculty

Richard Jackson, M.D.
Thomas McKeone, Ph.D.
Stephen Rappaport, Ph.D.

Associate Adjunct Professors

Mark Nicas, Ph.D.
Nina Tenenbaum, Ph.D.

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Program Overview
Academic degree programs in the Graduate Group in Environmental Health Sciences are recommended for individuals with clear research orientations who wish to complete work of an inter-disciplinary nature. Applicants may apply to the M.S. program, the Ph.D. program, or to the joint M.S./Ph.D. program. (Continuation into the Ph.D. program is contingent upon successful completion of the M.S. requirements.) EHS is administered within the Division of Environmental Health and Safety and bears all the features of a public health department. Although students receive their academic degrees from the graduate group (under the jurisdiction of the Graduate Division of the Berkeley campus), students are also affiliated with and apply to the School of Public Health. For further information, go to ehs.sph.berkeley.edu.

Environmental Science, Policy, and Management (College of Natural Resources)

Department Office: 137 Mulford Hall, (510) 643-7430 Undergraduate Student Services: 245 Mulford Hall, (510) 642-6870 Graduate Affairs Office: 245 Mulford Hall, (510) 642-6410 espm.berkeley.edu
Chair: Allen Goldstein, Ph.D.
Vice Chair for Instruction: Kate O'Neill, Ph.D.

Professors
Barbara H. Allen-Diaz, Ph.D. University of California, Berkeley. Rangeland ecology and management
Miguel A. Allen, Ph.D. University of Florida. Biological control. agro-ecology.
Ronald G. Amundson, Ph.D. University of California, Berkeley. Biogeochemistry.
Dennis S. Baldocchi, Ph.D. University of Nebraska. Biometeorology. forest atmosphere gas fluxes
Jillian F. Banfield, Ph.D. University of California, Berkeley. Geomicrobiology. fundamental biological ecology
Reginald H. Barrett, Ph.D. University of California, Berkeley. Wildlife biology and management
James W. Bartolome, Ph.D. University of California, Berkeley. Rangeland ecology and management
Gregory S. Biring, Ph.D. University of Wisconsin, Madison. Forest biometrics and remote sensing
Thomas D. Burns, Ph.D. University of Michigan. Fundamental molecular evolution and ecology
*John E. Casida, Ph.D. University of Wisconsin, Madison. Pesticide chemistry and toxicology
Todd Dawson, Ph.D. University of Washington. Physiological plant ecology. forest and grassland biogeochemistry
Richard S. Dodd, Ph.D. University of Wales. Tree genetics and systems biology
Mary K. Firestone, Ph.D. University of Michigan. Soil microbiology. nitrogen cycling.
Louse P. Foth, Ph.D. Cornell University. National resource sociology.
Gordon W. Franklin, Ph.D. University of California, Berkeley. Urban entology. Insect behavior
Invision Fung, Sc.D. Massachusetts Institute of Technology. Climate changes. biogeochemical cycle
Wayne M. Getz, Ph.D. University of Waterloo, Canada. Movement ecology. animal behavior.
Andrew Gutierrez, Ph.D. University of California, Berkeley. Systems ecology. biological control
Isao Kubo, Ph.D. Osaka City University, Japan. Natural products chemistry
Allen H. Goldstein, Ph.D. University of California, Madison. Forest economics.
Biogeochemistry. atmospheric chemistry
Peng Gong, Ph.D. University of Waterloo, Ontario, Canada. Remote sensing. forest biomass.
Andrew Gutierrez, Ph.D. University of California, Berkeley. Systems ecology. biological control
Isao Kubo, Ph.D. Osaka City University, Japan. Natural products chemistry
Robert T. Lane, Ph.D. University of California, Berkeley. Parasitology. tick biology
Steven E. Levey, Ph.D. University of Wisconsin. Microbial ecology. ecology of bacterial plant diseases
Joel R. McCreary, Ph.D. University of California, Berkeley. Forest ecology. urban forest
Carolyn Merchant, Ph.D. University of Wisconsin. Environmental engineering.
Nicholas J. Mills, Ph.D. University of East Anglia, Norwich. Biological control.
Katharine Milton, Ph.D. New York University. Tropical ecology. human/nonhuman primate, parasitology, host interactions
Kevin O'Hara, Ph.D. University of Washington. Stand dynamics. silviculture, forest management

Assistant Professors
George F. Oster, Ph.D. Columbia University. Mathematical ecology.
Nancy Peluso, Ph.D. Cornell University. Environmental sociology/resource policy
*Jerry A. Powell, Ph.D. University of California, Berkeley. Systematic entomology
Vincent H. Rest, Ph.D. University of Louisiana. Aquatic ecology.
George Rodenick, Ph.D. University of California, Berkeley. Population ecology. forest genetics evolution
Jeffrey M. Romm, Ph.D. Cornell University. Natural resource and environmental policy.
Whendee L. Silver, Ph.D. Yale University. Ecosystem ecology.
Garrison Sposito, Ph.D. University of California. Soil physical chemistry
Mark A. Tanouye, Ph.D. University of California. Soil neurophysiology
Lee V. Volkman, Ph.D. University of Washington. Bacteriologic pathogenesis and host interactions
*Stephen C. Welter, Ph.D. University of Louisville. Bacteriologic pathogenesis and host interactions
*Stephen C. Welter, Ph.D. University of Louisville. Bacteriologic pathogenesis and host interactions

Adjunct Professors
Charles Griswold, Ph.D. University of California, Berkeley. Entomology and parasitology
David Kawashima, Ph.D. University of Alberta, Edmonton, Alberta. Biogeography and evolution. systematics, ecology

Adjunct Associate Professors
Nina Maggi Kelly, Ph.D. University of Colorado. GIS and remote sensing
Adina Merenlender, Ph.D. University of Rochester. Ecology. conservation biology, landscape ecology

Adjunct Assistant Professors
Brian Fisher, Ph.D. University of California, Davis. Entomology
Matteo Garbelotto, Ph.D. University of California, Berkeley. Forest pathology. forest mycology. management of forests and trees
Max Moritz, Ph.D. University of California, Santa Barbara. Fire management
Lecturers

Cooperative Extension Specialists
Kent M. Daane, Biological control of insect pests
Vinayak R. Lewis, Biological control of structural and household pests
Doug Oddy, Artificial digestion of native California plants
Thomas Scott, Wildlife conservation, human impacts on wildlife, wildlife behavior
Richard B. Standford, Foresty
Robert A. Steiner, Pest management of deciduous fruit, nut, and vine crops
William Stuart, Watershed management, forest management, resource economics
William Tietje, Oak woodland ecology, human impacts on wildlife

Associate Cooperative Extension Specialists
Matteo Garbelotto, Forest pathology, forest mycology, forest management
Christy Getz, Ethics, history, politics, rural development
Nickolas J. Panopoulos, Ph.D. University of California, Berkeley. Conservation biology

Assistant Cooperative Extension Specialist
Nickolas J. Panopoulos, Ph.D. University of California, Berkeley. Conservation biology

ESPM Overview
The mission of the Department of Environmental Science, Policy, and Management is to bring a diverse research, teaching, and extension capacity to bear on environmental problems from local to global scales. The biological, physical, and social sciences of the department are organized into three divisions on the basis of similar disciplinary or topical research interests, but all work within the uniting framework of the analysis of environmental problems and the development of management strategies to address them. Environmental problems demand increased understanding of social, physical, and biological systems, as well as the transfer of basic research findings through modeling, implementation, teaching, and extension. ESPM facilitates the cross-disciplinary collaboration necessary to address vital, contemporary questions.

The department includes three divisions: Ecosystem Sciences, Organisms and Environment, and Society and Environment. The faculty have expertise in diverse areas of critical importance to environmental issues. Excellence in research and teaching, as well as in many disciplines, all brought together to focus on environmental problems, offers stu-
dents the opportunity to become leaders in research, conservation, restoration, and manage-ment of the environment, biodiversity, and natu-ral resources.

Facilities
The Department of Environmental Science, Policy, and Management is spread among Giannini Hall, Museum Hall, and Sather Tower. The Library has some of the world’s largest collections of books and periodicals on forestry, entomology, and natural resources, and extensive periodical collections in plant pathology and soils. ESPM also houses specialized laboratories for remote sensing and photogrammetry, tree physiology, pesticide chemistry, plant pathology, natural products chemistry and physiology, and ecology and wildlife biology, as well as well-equipped chemical and microbiological laboratories. There are also extensive herbaria, wildlife specimen collections, an entomological museum, insectary buildings, growth chambers, bioclimatic chambers, and scores of greenhouses at the nearby Oxford Research Unit and at the Division of Biological Control on the Gill Tract near Albany.

Computer facilities include microcomputer laborato ries and terminal rooms. ESPM manages field facilities at the 3,000-acre Blodgett Forest near Georgetown, Whiskey’s Forest adjacent to Sequoia National Park, the Howard Forest near Willits, Rus sell Research near Lafayette, and the Baker Forest adjacent to the department’s Summer Camp property. Berkeley’s location also provides easy access to numerous public and private resource management and conservation agencies including the U.S. Forest Service, the U.S. Fish and Wildlife Service, the U.S. National Park Service, the California Department of Forestry and Fire Protection, and the California Department of Fish and Game.

Undergraduate Programs
Courses offered by the Department of ESPM serve students in the College of Natural Resources and across the campus in such diverse but related studies as environmental protection and resource studies, botany, biochemistry, geology, geogra phy, and social science. A number of our courses are of sufficient general interest to attract students who wish to expand their intellectual horizons by learning something about environmental stud ies. Consult our web site for updates at espm.berkeley.edu.

Transfer Applicants
Transfer candidates should complete all lower divi sions for their intended major before entering Berkeley and may be denied admission if they have not done so. The Intersegmental General Education Transfer Curriculum (IGETC) is highly applicable to the Conservation and Resource Studies major and the Society and Environment major, and is limited application to other ESPM programs. In cases where the transfer institution does not have a course equivalent to a specific prerequisite for the major, applicants must take the coursework the first semester of enrollment at Berkeley.

Summer Field Program
In the beautiful mountains of the Plumas National Forest, the UC Summer Field Camp provides stu dents the opportunity to study the soils, geology, and wildlife of the Feather River Canyon. Tall ponderosa and sugar pine towers over the area, with white fir, Douglas fir, incense cedar, and black oak spreading in the dense forests. Several streams pass through the camp. Housing is pro-vided in cabins and bunkhouses, with a central kitchen and dining facility and a large campfire area in front. Residents enjoy easy hiking to water falls, lakes, and mountain meadows.

The courses of the summer field program cover wildlife of forest, range, and wildlife management; forest resource inventory; forest products; harvesting practices; and many other subjects. During the eight-week program students will learn the concepts and techniques that wildland resource managers use in their work. Your experiences studying forestry and wildland resources in a field setting will enrich your future academic studies at Berkeley.

The courses are an integral part of the core cur riculum in the forestry and natural resources major, but students of any major on the Berkeley campus are welcome to attend. Students may complete all requirements of the minor in forestry by attending camp. Information and an application may be found at espm.berkeley.edu/summercamp. The courses that comprise the camp are ESPM 101A-101E, including Sierra Nevada Ecology, Silviculture, Inventory and Measurements, and Timber and Resource Management, for a total of 10 units.

Major in Conservation and Resource Studies
Chief Adviser: Professor Gordon Frankie
The conservation and resource studies major is an interdisciplinary program designed for those who are interested in environmental issues and areas of interaction among natural resources, populations, energy, technology, societal institutions, and cultural values. Students draw on the course offerings of the entire campus and appropriate community resources in the development of individual programs of study. The major's orientation is toward flexibility and an individualized educa tional approach to understanding the structure and dynamic functions of complex environmental sys tems within our society and biosphere. It encourages interaction among students, faculty, and community.

Course requirements for the major include one ESPM environmental course, one ESPM social science course, and ESPM 90, 100, and 194. In the freshman and sophomore years, students will be expected to take two courses in reading and composition, one course in calculus or statistics. In addition, students must take one course in general biology, one in social science, one course each in physical sciences and the humanities; and two courses preparatory to the individual areas of interest. For transfer students, IGETC will satisfy all lower division requirements except ESPM 90. In the junior and senior years, students will con centrate on their areas of interest. A more detailed statement of major requirements is available at the ESPM web site and from the department office. Applications for on-campus transfers from other majors are reviewed once each semester. Check with the Undergraduate Services Office, 245 Mulford Hall, (510) 642-4249, for deadlines each semester.

Minor Program. A minor in conservation and resource studies is available to any Berkeley student in good academic standing. Requirements are completion of a minimum of five courses related to this field, totaling a minimum of 12 units. One of the five courses must be ESPM 10 and at least three courses must be upper division. All courses must be taken for letter grade only. Students must have a GPA over 2.0 in all. Interested students should obtain the require ments from the department before starting the minor. Students will be awarded the minor follow ing satisfactory completion and certification from the department.

Major in Forestry and Natural Resources
Chief Adviser: Professor John Battles
The Major in Forestry and Natural Resources (FNR) is the result of a merger of the former majors in forestry and in resource management. Specializations in natural science and human dimensions are offered in the study of land man agement of forest, woodland, and grassland eco systems. Emphases in wildlife biology, water policy, fire science, ecosystem restoration, environmental justice, remote sensing and geographic informa tion systems, and rural sociology are available. This major prepares students for graduate school and careers in environmental consulting, public agencies, nonprofit organizations, and private companies, and for professional careers in forestry, wildlife, and range management. Participation in an eight-week summer field pro gram in the northern Sierra Nevada is required.

Accreditation and Licensures. Established in 1914, forestry at Berkeley was the first forestry degree in California to be accredited by the Society of American Foresters. Completion of the Bachelor of Science degree in forestry provides four years of credit toward the master of forestry degree. By careful selection of electives, students who complete the Bachelor of Sci ence in forestry degree can meet the U.S. Civil Service and state requirements for the forester position.

Minor Program. A minor in Forestry and Natural Resources is available for students who are interested in learning about forestry and renewable resource management as an adjunct to their current major, in many diverse majors—such as zoology, business administration, and civil engineering—may find this minor complementary to their professional career goals.

Major in Molecular Environmental Biology
Chief Adviser: Professor Rosemary Gillespie
The molecular environmental biology (MEB) major is designed to expose students to the organiza tion and function of biological organisms at the molecular, cellular, organismal, and population levels. The breadth of this vertically integrated program is valuable in the added perspective it provides for students interested in how organisms respond to their environment and how these responses are expected to play an increasing role in envi ronmental problem-solving in the near future, and educated citizens and researchers alike will need to have a grasp of basic molecular through eco logical principles in order for these approaches to be effective in problem solving. This major is appropriate for pre-med and pre-vet students, as well as students interested in general biology. Students in this major have a choice among four areas of emphasis: (1) animal health and behavior, (2) biodiversity, (3) ecology, (4) environment and human health, (5) organisms and environment, and (6) microbiology.

Major in Society and Environment
Chief Adviser: Professor Jeffrey Romm
Social and environmental problems are deeply intertwined. The Society and Environment major prepares students to study these interactions and theory for environmental social sciences, including how social science tools can be applied to envi ronmental problems, and how social science the ories can be applied to environmental problems. At the upper division level there are three major areas of concentration. Students are exposed to all three areas and choose to focus in one: U.S. Environmental Policy and Management,
Global Environmental Politics, or Environmental History and Policy, international forest politics, injustice and development.

Graduate Programs:

Graduate Student Services: 245 Mulford Hall, (510) 642-6410

Head Graduate Adviser: Professor Kate O’Neill

The degree programs address environmental problems of major social and political impact. This is the broadest of the program’s areas of emphasis, encompassing the social and environmental sciences. The graduate program in this division is divided into two main areas: (1) broadly based interdisciplinary education, and (2) disciplinary education in relevant fields supplemented with exposure to cross-disciplinary communication and problem solving. The ESPM program offers both types of education. In addition, students in natural sciences must complete one additional course in the application of social sciences to environmental problems, and those in social sciences must complete one additional course in the biological or physical sciences. The Guiding Committee and the Head graduate adviser will approve the selection of appropriate courses to meet these course requirements.

Admission to the Graduate Program:

Graduate Programs:

Applicants for admission to the graduate program must hold a bachelor’s degree from a university or college with curricula and standards equivalent to those of the University of California. The completed undergraduate program should normally be in a field relevant to the disciplinary emphasis chosen. Applicants without this background will be admitted with the understanding that their coursework must compensate for deficiencies in their preparation. We suggest that prospective applicants consult with faculty or the Graduate Student Services office for advice on what courses may be recommended.

Research Facilities:

Departmental facilities of high quality are available to support graduate student research and education. Facilities include state-of-the-art instrumentation and laboratories, insectary buildings, controlled environment chambers, extensive greenhouse space, and field plots at the Oxford Tract (on campus). Field facilities available to departmental faculty and students include the 3500 acre Blodgett Forest; Whitaker’s Forest with giant sequoia stands adjacent to King’s Canyon National Park; Russell Reservation, located 13 miles east of the campus. Students may conduct research with an agricultural orientation at any of several University of California field stations which are located throughout the state.

Supplementing the University library are extensive holdings covering the physical, biological, and sociological dimensions of forestry and wildland resource management. The department also houses an outstanding entomological museum that supports both teaching and research programs in insect systematics and ecology.

Master of Forestry (M.F.)

Graduate Adviser: Kevin L. O’Hara

The Master of Forestry degree is the advanced professional forestry degree granted by the Department of Environmental Science, Policy, and Management. The student who has completed an over a wide range of spatial and temporal scales, with emphasis on extending understanding of processes derived from research at smaller scales to landscapes and ecosystems. The role of human activities, including ecosystem management scenarios, is an integral component.

(2) Organisms and Environment. The mission of the Division of Organisms and Environment is to use fundamental research on insect systems to address critical environmental issues and to solve vital environmental problems. Research interests in this division are wide ranging, from the molecular to whole ecosystems, providing a strong integration of biological processes and the understanding of interactions with other institutions. In this Division, research emphases include environmental toxicology, medical entomology, and insect-microbe interactions.

(3) Society and Environment. Faculty and students of the Division of Society and Environment study the social determinants of power and resources in the context of the disciplinary emphasis. Some examples of these areas are microbial community ecology, ecosystem function, insect population dynamics, and management.

The area of specialization is a narrower field within the context of the disciplinary emphasis. Some examples of these areas are microbial community ecology, ecosystem function, insect population dynamics, and management.

Research Methods:

Candidates for the Ph.D. must demonstrate competence in research techniques appropriate for the disciplinary emphasis and area of specialization. Preparation in this field must include experimental design, sampling, design, estimation, and hypothesis testing.

Breadth Requirement:

Each student’s program must include coursework addressing human and ecosystem processes and the role that they play in biodiversity. All students must complete the required core courses, ESPM 201A-201C-201S. In addition, while in residence, doctoral students in the natural sciences must complete the additional course in one of the sciences to environmental problems, and those in the social sciences must complete one additional course in the biological or physical sciences. The level of this course will be determined by the guiding committee, based on the student’s background and experience. The core must be a minimum of 2 graduate units or 3 upper division undergraduate units, and must be taken for a letter grade unless it is offered on a S/U basis only.

Required Core Courses:

All master’s and doctoral students in ESPM are required to take a core course. The first required course, ESPM 201A, Research Approaches in Environmental Science, Policy, and Management (3 units), will be taken in the first fall semester by all new master’s and doctoral students. ESPM 201C, the seminar entitled Environmental Forum (1 unit), is required for all doctoral students and must either have been taken before, or be in progress, when the doctoral oral qualifying examination is held. Master’s students are not required to take 201C. ESPM 201S, Environmental Science, Policy, and Management Colloquium (1 unit), is required for all doctoral students and must be taken once before the oral qualifying examination. ESPM 201S may be repeated for credit.

Students are also required to complete a minimum of 20 units in their area of specialization. In addition, students in natural sciences must complete one additional course in the application of social sciences to environmental problems, and those in social sciences must complete one additional course in the biological or physical sciences. The Guiding Committee and the head graduate adviser will approve the selection of appropriate courses to meet these course requirements.
undergraduate curriculum in forestry is usually broadly trained in the principles of forestry but has not yet developed proficiency in the application of these principles to actual problems underpinned in professional practice. The Master of Forestry program is designed to advance the student's understanding of the essentials of professional forest management. The student will complete five courses within the context of the major field of study.

The M.F. program consists of three components: coursework, an internship, and a professional project. The coursework consists of 24 semester units of upper division and graduate courses of which at least 12 units must be at the graduate level. The program of study must be approved by the graduate adviser and guiding professor as consistent with the student's proficiencies and advanced specialized training in professional forest resource management. The internship, normally with a public or private forest land management organization, provides direct experience in the application of theory to professional land management. The purpose of the professional paper is to demonstrate, within a distinct framework, a student's ability to assemble and analyze, or obtain from the literature, a resolution of an applied forest problem. The paper may be based on the internship or on another supervised professional work experience, or may be a research project. The paper must be completed within one semester and must, in all cases, be accepted and approved by the guiding professor and graduate adviser.

Upon completion of the program of coursework, approval of the professional paper, the student will take a comprehensive oral examination covering the field of forest management. Although major emphasis will be placed on work done in the period of residence, students also should be prepared to demonstrate mastery of the major fields of their undergraduate education.

Interdepartmental Graduate Group in Range Management (M.S.)

For information about the M.S. degree in range management, see the “Range Management” section of this catalog. Additional information about the graduate programs offered by the Department of Environmental Science, Policy, and Management may be obtained from the Graduate Student Services Office, 245 Mulford Hall; (510) 642-6410; espmgrad@nature.berkeley.edu; espm.berkeley.edu/gradprograms/grad_programs_msr.html.

Lower Division Courses

Basic Environmental Topics

2. The Biosphere. (3) Three hours of lecture and one hour of discussion per week. An introduction to the unifying principles and fundamental concepts underlying our scientific understanding of the biosphere. Topics covered include the physical life support system on earth; nutrient cycles and factors regulating the environment; human interventions in the biosphere. (F)

Environmental Issues

C10. Environmental Issues. (4) Students will receive no credit for C10 after taking 10. Three hours of lecture and one-and-one-half hours of discussion per week. Relationship between human society and the natural environment; case studies of ecosystem maintenance and disruption. Issues of economic development, population, energy, technologies, science, and social systems. Also listed as Letters and Science C30V. (F)

Environmental Sciences

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week per unit. Sections 1-4 to be graded on a letter-grade basis. Sections 5-8 to be graded on a passed/not passed basis. Prerequisites: Priority to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar environment. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP)

40. Insects and Human Society. (2) Two hours of lecture per week. An introduction to the diversity and natural history of insects in natural and human environments. Prerequisites: Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar environment. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP)

Biological Control. (2) Two hours of lecture per week. Regulation of populations of organisms, especially insects, through interactions with parasites, predators, and pathogens. Emphasis is on use of science in decision making. Examples from agricultural, forest, urban, and recreational environments. (F)

Environmental Policy and Management

50AC. Introduction to Culture and Natural Resource Management. (4) Three hours of lecture and one hour of discussion per week. Formerly 50. An introduction to how culture affects the way we use and develop land, water, wildlife, parks and preserves, and croplands in America. The basic concepts and tools for evaluating the role of culture in resource use and management are introduced, as well as used to examine the effects of American cultural and institutional groups in the development and management of western natural resources. This course satisfies the American Cultures requirement. (F,SP)

50. Environmental Policy, Administration, and Law. (4) Three hours of lecture and one hour of discussion per week. Introduction to U.S. environmental policy process focuses on history and evolution of political institutions, importance of property, federal and state roles in decision making, and challenges of environmental policy. Emphasis is on use of science in decision making, choices between regulations and incentives, and role of bureaucracy in regulatory policy. Case studies in natural resource management, risk management, and free market regulation, and environmental justice. (F,SP)

72. Introduction to Geographic Information Systems. (3) Two hours of lecture and three hours of laboratory per week. Introduction to U.S. environmental policy process focuses on history and evolution of political institutions, importance of property, federal and state roles in decision making, and challenges of environmental policy. Emphasis is on use of science in decision making, choices between regulations and incentives, and role of bureaucracy in regulatory policy. Case studies in natural resource management, risk management, and free market regulation, and environmental justice. (F,SP)

78A. Teaching and Learning Environmental Science. (4) Three hours of lecture, one hour of discussion, and three hours of field laboratory per week. Prerequisites: Three years of high school math. Introduction to computer systems, data processing software for natural resources studies. Components of geographic information systems; concepts of surveying, mapping, and remote sensing as data sources; various methods of data processing and analysis including classification, map overlay, buffer analysis, topographic modeling, spatial interpolation, and map design with a GIS. Intensive hands-on practices with relevant computer software packages. (SP)

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half
hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Students may choose to take up to two courses in one semester. Students who elect to take more than two courses may be dropped. (SP) Staff

Special Topics and Independent Study
90. Introduction to Conservation and Resource Studies Major. (2) Two hours of lecture for six weeks. No prerequisites. This course will introduce the major to those students who have not yet decided on a major. It will be limited to 25 students. Staff

102B. Laboratory in Natural Resource Sampling. (2) Four hours of discussion/laboratory per week. Prerequisites: Statistics 2 or 20. This laboratory course is designed for an introduction to sample size and confidence interval calculation. The field laboratory part of this course will be conducted in environmental sampling methodology courses. Field data is collected with various important sampling designs and analyzed. Mean values and confidence intervals are calculated. May be taken with laboratory course 102BL. (F) Biging

102C. Resource Management. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Preparatory Calculus. 156, 184, and 70 are recommended. This course will develop principles of environmental policy and management. It covers basic mechanisms of resource policy formation and execution. It develops concepts of public policy and how cultural, legal, political, economic, and administrative processes form, execute, and succeed. Policies are examined. The focus is on goals, criteria, data, models, and technology for quantifying and communicating the consequences of policy options. (SP) Staff

102D. Resource and Environmental Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Environmental Economics and Policy 1 or one other division course in a social science, or consent of instructor. This course will develop principles of environmental policy and management. It covers basic mechanisms of resource policy formation and execution. It develops concepts of public policy and how cultural, legal, political, economic, and administrative processes form, execute, and succeed. Policies are examined. The focus is on goals, criteria, data, models, and technology for quantifying and communicating the consequences of policy options. (SP) Staff

102E. Directed Group Study in ESPM. (1-3) Course may be repeated for credit. One hour of lecture/per unit per week. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing (3.4 GPA or better), consent of instructor, adviser, and department chair. Usually restricted to ESPM majors. One field trip is normally required. (F,SP) Staff

109. Range Plants. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B or equivalent. This course covers basic mechanisms of inheritance for understanding principles of population genetics and analysis of quantitative traits. It examines methods of measuring and describing quantitative genetic variation in trees. Examples of theoretical aspects of genetics are used to understand patterns of genetic variation in natural populations of forest trees, applications to conservation biology, and their implications for developing strategies for commercial programs of forest tree improvement. (F) Dodd

110. Primate Ecology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B. Formerly C111, Integrative Biology C155. This course will develop principles of ecosystems, ecology, emphasizing terrestrial ecosystems, and will consider how these principles apply to ecosystem recovery and to regional and global fluxes of carbon and nutrients. (SP) Baldocchi, Silver

Ecology
112. Microbial Ecology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B or consent of instructor. Ecology of microorganisms. Topics include the ecology and evolution of microbes and their relationship with each other and the environment. The role and function of microbes in several ecosystems is also discussed. (SP) Staff

113. Insect Ecology. (2) Two hours of lecture per week. Prerequisites: Biology 1B or consent of instructor. Ecology of insects: interactions with the physical environment; structure and functioning of insect populations and communities; behavioral ecology of predator-prey interactions; plant-insect interactions; social insects; pollination biology; applied insect ecology. (SP) Walter

114. Wildlife Ecology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Upper division or graduate standing. Introduction to wildlife ecology and its relationship to management programs. Includes population, community, and ecosystem levels of organization, followed by selected case studies. (SP) Staff

115B. Biology of Aquatic Insects. (2) Two hours of lecture per week. Prerequisites: Introductory course in a biological science. Identification and ecology of aquatic insects, including their role as indicators of environmental quality. Offered odd-numbered years. (F) Flesh
115C. Fish Ecology. (3) Two hours of lecture and three hours of laboratory per week; one Saturday field trip. Prerequisites: Introductory course in biological science; upper division or graduate standing. Introduction to fish ecology, with particular emphasis on the identification and ecology of California's inland fishes. This course will expose students to the diversity of fishes found in California, emphasizing the physical (e.g., temperature, flow), biotic (e.g., predation, competition), and human-related (e.g., dams, fisheries) factors that affect the distribution, diversity, and abundance of these fishes. (F) Carlson

116B. Range Ecology, Improvements, and Management. Three hours of lecture per week. Prerequisites: One course in ecology. The ecological basis for range management activities, considered in the context of western range ecosystem types. Specific range improvement and range management practices are discussed in the context of ecosystem processes. (SP) Allen-Diaz, Bartoleme

116C. Tropical Forest Ecology. (3) Three hours of lecture per week. Prerequisites: One course in ecology and one course in chemistry or consent of instructor. Introduction to the ecology of terrestrial tropical ecosystems, with particular emphasis on neotropical forests. Explores unique aspects of tropical ecosystems, especially nutrient cycles, net primary productivity, biological diversity, structure and dynamics, disturbance ecology, and the natural history of key forest organisms. Basic ecology is integrated with discussion of human disturbances, restoration of tropical ecosystems, and the global importance of tropical forests. (SP) Silver

117. Urban Garden Ecosystems. (4) Three hours of lecture and three hours of laboratory per week. An ecosystem approach to the study of urban gardens with an organic perspective. Topics include fundamental designs of urban gardens, soil properties and fertility, pest and disease management, and food preservation. Laboratories include methods in garden design, plant propagation, compost technique, soil preparation, and identifications of urban vegetation, weeds, and native species. Enrollment is limited. (F) Altieri

118. Agricultural Ecology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Examines in a holistic framework biological, technical, social-economic, and political processes that govern agroecosystem productivity and stability. Management techniques and farming systems designs that sustain long-term productivity are emphasized. One Saturday field trip and one optional field trip. (F) Altieri

119. Chemical Ecology. (2) Two hours of lecture per week. Prerequisites: Introductory courses in organic chemistry or biology and consent of instructor. Plant toxins, toxins from animals, hormones, and their activities in the soil ecosystem. Lectures will include a Saturday field trip. (F) Amundson

120. Soil, Water, Atmosphere

120. Soil Characteristics. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, 3A, Introductory courses in biology, chemistry, and biological properties of soil; methods of soil description, identification, geographic distribution and uses; the role of soil in supplying water and nutrients to plants; and soil water balance. Lecture for agriculture, forestry, and urban uses will also be discussed. Includes a Saturday field trip. (F) Amundson

121. Development and Classification of Soils. (3) Three hours of lecture per week. Prerequisites: Earth and Planetary Sciences 100A-100B, and Chemistry 1A, 3A recommended. Development, morphology, and classification of soils as related to geology, environmental factors, and time. Soils as functioning parts of ecosystems; use of soils in archeological and paleo-ecological settings. Special emphasis on recognition and use of soil ecosystem characteristics. Offered even numbered years. (SP) Amundson

122. Field Study of Soil Development. (1) Five daylong Saturday field trips to locations in central California. The field study of soil development and processes that influence soil formation; descriptions of soil profiles; studies of factors controlling soil development; relationship of soil morphology to land use; quaternary geology of central California; use of soils in dating landscapes. Offered even numbered years. (SP) Amundson

126. Environmental Soil Chemistry. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, 3A, and Math 16A or equivalent. Recommended: 120, 121 or EPS 50 or equivalent. Focus on processes that control the availability of chemical elements in the environment and the effect of soil chemistry on environmental processes. Application of principles and concepts of soil chemistry to different environmental conditions in soils, e.g., acidity/alkalinity, aeration, water potential, and salinity, to predict changes in chemical behavior. (SP) Staff

132. Environmental Aqueous Geochemistry. (3) Three hours of lecture per week. Prerequisites: Civil Engineering 111 or equivalent. Chemical mechanisms of reactions controlling the fate of pollutants in the subsurface environment. Chemical reactions in subsurface environments with emphasis on toxic and bioavailable pollutants. Principles of environmental geochemistry. Chemical modeling of pollutant geochemistry. Also listed as Civil and Environmental Engineering C116. (SP) Sposito

139. Environmental Microbiology

C130. Water in Terrestrial Environment. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, Math 1A-1B, Physics 7A, or consent of instructor. Formerly 129. This course describes how the physical environment (light, wind, temperature, humidity) of plants and soil affects the physiological status of plants and how plants influence the physical environment. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and material (water, CO2, nutrients, etc.) between plants, soil, atmosphere, and vegetation and the atmosphere. Quantitative aspects of photosynthesis and respiration and the role of water in the water cycle are also covered. (F) Baldocchi

140. General Entomology. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: Introductory course in a biological science. Biology of insects, including a diversity of orders and common families, morphology, physiology, behavior, and ecology. (SP) Roderick

141. Development of Taxonomic Identification Keys and Natural Language Descriptions. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Prior knowledge of focus group for project. Tools for identification of organisms to species or higher-level taxonomic groups are critically needed. This course will allow students to learn both the theoretical basis of coding for building traditional dichotomous keys and various types of interactive keys. Emphasis will be on learning to build a web-based interactive key and developing natural language descriptions through a series of individual projects. Students can train on the Microlinks Digital XLT imaging system and learn to use Lucid and Lucid Phoenix software. Other Internet identification tools may also be surveyed. Each student will produce an online key as a project. (F) Will

142. Environmental Microbiology

C130. Water in Terrestrial Environment. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, Math 1A-1B, Physics 7A, or consent of instructor. Formerly 129. This course describes how the physical environment (light, wind, temperature, humidity) of plants and soil affects the physiological status of plants and how plants influence the physical environment. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and material (water, CO2, nutrients, etc.) between plants, soil, atmosphere, and vegetation and the atmosphere. Quantitative aspects of photosynthesis and respiration and the role of water in the water cycle are also covered. (F) Baldocchi

143. Watershed Hydrology. (3) Three hours of lecture/ readings/video per week. This course provides an introduction to watershed hydrology. We take a detailed look at the hydrologic cycle, with a focus on the occurrence, movement, distribution, and storage of water. Topics covered include water budgets, precipitation, evaporation, surface runoff, groundwater flow, and connections to water quality and biological productivity. This course is equivalent to an introductory course in water resources management and is designed for both advanced undergraduate and beginning graduate students. This course will prepare students to understand existing hydrologic processes and the ability to acquire and analyze hydrologic data. (SP) Boyer

144. Insect Physiology. (3) Two hours of lecture and one hour of discussion/lab per week. Prerequisites: General biology, zoology, or entomology. A survey of the unique physiological mechanisms of insects, including the analysis of physiological systems at the cellular-molecular level. The roles of the nervous and endocrine systems in coordinating physiological processes are emphasized. (SP) Tanouye

145. Arthropod-Borne Zoonotic Diseases: Basic Principles and Methods of Study. (2) Two hours of lecture per week. Prerequisites: 146 or consent of instructor. Formerly 346. This course will focus on the ecology and epidemiology of zoonotic disease agents transmitted to humans by arthropods. Basic principles will be discussed, and techniques for conduct-
146. Medical/Veterinary Entomology. (3) Two hours of lecture and one hour of demonstration/discussion per week. The role of insects and other arthropods in the transmission of diseases in man and domestic animals, including the geographical areas and types of ecosystems inhabited by various species and the structural/behavioral adaptations associated with disease transmission. Examples of vector-borne diseases considered include malaria, yellow fever, plague, typhus, filariasis, African and American trypanosomiasis, Lyme disease, Rocky Mountain spotted fever, relapsing fevers. Offered odd-numbered years. (SP) Lane

146L. Medical and Veterinary Entomology Laboratory. (1) Three hours of laboratory per week. Laboratory identification of the major arthropod vectors of disease agents to humans and other animals, and study of the structural adaptations associated with their safety and activity. Offered odd-numbered years. (SP) Lane

147. Field Entomology. (1) Course may be repeated for credit up to four times. One week involving 60 hours of field work and one hour of lecture. Offered four times per year. Prerequisites: 42, 140, or consent of instructor. Field observation, recording and interpretation of insect relationships to habitats, their behavior and plant insect interactions. Collection and preparation of specimens with important biological data. (F,SP) Staff

148. Pesticide Chemistry and Toxicology. (3) Three hours of lecture per week. Prerequisites: Introductory courses in organic chemistry and biology, or consent of instructor. Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity. Offered odd-numbered years. (SP) Casida

148C. Pesticide Chemistry and Toxicology. (3) Three hours of lecture per week. Prerequisites: Introductory courses in organic chemistry and biology, or consent of instructor. Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity. Also listed as Nutritional Science and Toxicology C114. (SP) Casida

149. Molecular Ecology. (4) Students will receive no credit for C149 if they took Integrative Biology 149 prior to spring 2003. Three hours of lecture and one hour of discussion per week. Prerequisites: Introduction to Molecular Biology C163, 161 or Molecular and Cell Biology C142 (may be taken concurrently), or consent of instructor. Formerly Integrative Biology 149. This course focuses on the use of molecular genetic information in ecology. Applications and techniques covered range from analysis of parentage and relatedness (DNA fingerprinting and multilocus genetic analysis) through gene flow, biogeographic history and community composition (comparative analysis) to analysis of trophic interactions (biological isotopes). Grades are based on one final exam, problem sheets, and a critique of a recent research paper. Also listed as Integrative Biology C149. Offered alternate years. (SP) Montz, Roderick

149L. Molecular Ecology Laboratory. (2) Six hours of laboratory per week. Prerequisites: Integrative Biology 149 (may be taken concurrently) or consent of instructor. Formerly Integrative Biology 149L. This laboratory is intended to provide hands-on training in techniques commonly used in molecular ecology and systematics. Techniques to be covered include DNA extraction, agarose gel electrophoresis, PCR amplification, DNA sequence analysis, DNA microsatellite screening. The genetic basis of each technique will be discussed. Students also will gain experience in the analysis and interpretation of these types of genetic data. During the latter part of the course, students will work in small groups to complete an independent research project and present the results to the class. Grades will be based on laboratory notebooks, homework assignments, and independent projects. Offered alternate years.

Environmental Policy and Law

150. Special Topics in Environmental Science, Policy, and Management. (2-4) Course may be repeated for credit as topic varies. One hour of lecture per week per unit. Special topics in environmental policy and management. Topics may vary from semester to semester. (F,SP) Staff

151. Society and Environment. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 150 and one of the following: issues, concepts, and processes pertaining to the diverse approaches to understanding the relationship between human society and the environment. Core ideas in present approaches to U.S. environmental policy and management; global environmental politics; environmental justice and development. Critical analysis and discussion of foundational and contemporary texts in the field. Required for the major in society and environment. (SP) Staff

Natural Resource Sociology and Economics

155. Sociology of Natural Resources. (4) Three hours of lecture and one hour of discussion per week. Sociological perspective on the relationship between societies and wildland resource management; social definition of natural resources, identification of social resources, organization of resource use, public involvement, and social impact analysis. (F) Fortmann

C159. Human Diet. (4) Three hours of lecture and one hour of discussion per week. Since we eat every day, wouldn’t it be useful to learn more about human dietary practices? A broad overview of the complex interrelationship between humans and their foods. Topics include the human dietary niche, biological variation related to diet, diet and disease, domestication of staple crops, food processing techniques and development of regions and diets and their problems, food taboos, human attitudes toward foods, and dietary politics. Also listed as Nutritional Science and Toxicology C159. (SP) Milton

Environmental History, Philosophy, and Ethics

160AC. American Environmental and Cultural History. (4) Three hours of lecture and one and one-half hours of discussion per week. Formerly C160. Historical and cultural aspects of the ways in which different cultural groups have used, used, managed, and conserved it from colonial times to the present. Cultures include American Indians and European, Latin, and African Americans. Natural resources development includes gathering-hunting-fishing; farming, mining, ranching, forestry, and urbanization. Changes in attitudes and behaviors toward nature and past and present conservation and environmental movements are also examined. Also listed as History 120AC. This course satisfies the American cultures requirement. (F) Merchant

161. Environmental Philosophy and Ethics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 100 or consent of instructor. A critical analysis of human environments as physical, social-economic, and technocultural ecosystems with emphasis on the role of ideologies, beliefs, attitudes, and behavior. An examination of contemporary environmental literature and the philosophies embodied therein. Offered even-numbered years. (F) Merchant

162. Bioethics and Society. (4) Three hours of lecture and one hour of discussion per week. Exploration of the ethical dilemmas and conflicts arising in the biological sciences: genetic engineering, sociobiology, health care delivery, behavior modification, patients’ rights, social or private control of research. (SP) Winickoff

163AC. Environmental Justice: Race, Class, Equity, and the Environment. (4) Students will receive no credit for 163AC after taking Sociology 128. Deficiency in Sociology 128 may be removed by taking 163AC. Two hours of lecture and one hour of discussion per week. A review of the literature on environmental science, analyzing the implications of race, class, labor, and equity on environmental degradation and regulation. Environmental justice movements and struggles within poor communities and people of color in the U.S., including African Americans, Latin Americans, and Native American Indians. Frameworks and methods for analyzing race, class, and labor. Cases of environmental injustice, corporate and government responses, and future strategies for achieving environmental and labor justice. Also listed as Sociology 128AC. This course satisfies the American cultures requirement. (F) O’Rourke

Rural and International Development

165. International Rural Development Policy. (4) Three hours of lecture and one hour of discussion per week. Comparative analysis of policy systems governing natural resource development in the rural Third World. Emphasis on organization and function of agricultural and mineral development, with particular consideration of rural hunger, resource availability, technological, and patterns of international aid. (SP) Carr

166. Natural Resource Policy and Indigenous Peoples. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 165 (formerly CRS 163) and consent of instructor. Critical analysis of the historical transformation of indigenous peoples and their environments in North America and the Third World. The origins and specific patterns of socio-economic problems in these areas, existing and alternative future development policies and their effects. (SP) Staff

167. Environmental Health and Development. (3) Students will receive no credit for 167 after taking C167. Students may remove a deficient grade in C167 by taking C267. Three hours of lecture per week. The impact of environmental alterations resulting from development programs and other human activities which affect the health of people in developed and less developed parts of the world. Case studies and mitigation measures of diseases associated with water storage utilization. (F) Staff

167C. Environmental Health and Development. (4) Students will receive no credit for C167 after taking 167. Students may remove a deficient grade in C167 by taking 167C. Three hours of lecture and one hour of discussion per week. The health effects of environmental alterations caused by development programs and other human activities in both developing and developed areas. Case studies of environmental and odontal information and incorporate a global perspective on environmentally mediated diseases in diverse populations. Topics include: water management; population change; toxins; energy development; air pollution; climate change; chemical use, etc. Also listed as Public Health C160. (F) Moreno-Franch

168. Political Ecology. (4) Three hours of lecture and one hour of discussion per week. Analysis of environmental problems in an international context with a focus on political and economic processes, resource access, and representations of nature. Discussion of the ways in which film, literature, and the news media reflect and influence environmental politics. Approaches to policy analysis arising from recent social theory. (SP) Pei

169. International Environmental Politics. (4) Three hours of lecture and one hour of discussion per week. The dynamics of international politics are examined over the last 25 years. Attention is paid to different perspectives in global environmental politics. Special emphasis involved, how well international agreements address the problems they are supposed to solve, and the main debates in the field, including trade-environmental conflicts, security, and environmental justice issues. Issues covered vary but may include climate change, biodiversity, population, and toxins. (F) O’Neill
Resource Assessment and Evaluation

172. Photogrammetry and Remote Sensing. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Geometry, algebra, and trigonometry. This course introduces the concepts and principles of photogrammetry and remote sensing, specifically aerial photography, as important data collection and analysis tools for natural resources management, spatial sciences, such as ecology, geography, geology, civil engineering, and environmental design. Photo measures of scale, area, and object height, flight planning, an introduction to the elements of photogrammetric, photointerpretation, submap, digital remote sensing, and data management in geographic information systems will be discussed. (SP) Gong

173. Introduction to Ecological Data Analysis. (3) Three hours of lecture and two hours of laboratory per week. Introduces concepts and methods for practical analysis of data from ecology and related disciplines. Topics include data summaries, distributions, and probability; comparison of data groups using t-tests and ANOVA; regression and correlation; and a glimpse at more advanced topics such as computer simulations. Examples include height, flight planning, an introduction to the elements of photogrammetry, photointerpretation, submap, digital remote sensing, and data management in geographic information systems will be discussed. (F) de Valpine

174. Design and Analysis of Ecological Research. (4) Three hours of lecture and one hour of computer laboratory per week. Prerequisites: One year calculus; one course in the content of ecology. Students study major designs and analyses for biological field and laboratory studies. Topics include: data distributions; regression; analysis of variance; fixed and random effects; blocking, split plots, and repeated measures; maximum likelihood; Generalized Linear Models; basic computer programming. Relies on math to interpret and manipulate equations supported by computer simulations. Examples include: population, ecosystem, behavioral, and evolutionary ecology. (SP) de Valpine

178A. Teaching and Learning Environmental Science. (4) Three hours of lecture, one hour of discussion, and three hours of field laboratory per week. Prerequisites: Consent of instructor. This course provides a forum for students to discuss and exchange ideas on teaching and learning environmental science. It is designed to help students develop pedagogical and content-based understanding of the science and curriculum design and delivery of environmental science. The course is intended for students who are interested in teaching environmental science at the K-12 level. (F) Staff

178B. Environmental Science Education Practicum. (4) Course may be repeated for credit. Three hours of lecture, one hour of discussion, and three hours of fieldwork per week. Prerequisites: Consent of instructor. This course provides an opportunity for students to engage in field-based learning experiences in order to develop teaching skills. This course is required for all students in the environmental science education program. (F,SP) Staff

Resource Management

C180. Air Pollution. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Chemistry 1A or 1B and Physics 6A, or equivalent, or consent of instructor. This course is an introduction to air pollution and the chemistry of Earth's atmosphere. We will focus on the natural processes that result in trace gas and aerosol concentrations in the atmosphere, and how anthropogenic activity has affected those processes at the local, regional, and global scales. Specific topics include stratospheric ozone depletion, increasing concentrations of greenhouse gases, smog, and changes in the oxidation capacity of the troposphere. Also listed as Earth and Planetary Science C106. (F) Goldstein

181. Wildland Fire Science. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Fundamentals of wildland fire including fire behavior modeling, fire history methods, fire management, fire mapping, fire in the urban-wildland intermix, wildland fire, and ecosystem sustainability. Laboratories on inventory methods, fire history, modeling of fire behavior and risk, and prescribed burning. (SP) Stephens

181A, Wildland Fire Science. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of Instructor. Formerly 181. Fundamentals of wildland fire including fire behavior modeling, fire history methods, prescribed fire techniques, fire ecology, fire management, fire management in the urban-wildland intermix, wildland fire, and ecosystem sustainability. Laboratories on inventory methods, fire history, modeling of fire behavior and risk, and prescribed burning. (SP) Stephens

182. Forest Operations Management. (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: Upper division standing. Course details the fulfillment of human needs through forest operations, coupled with the management required to make operations culturally and environmentally appropriate. The framework for understanding human interaction within forested environments includes the operational mesh of technical, social, economic, organizational, and ecological factors. The worldwide range of stewardship activities includes access, product harvest, tree tending, regeneration, and protection. (F,SP) Staff

183. Forest Planning and Management. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 70, 102B or 171, 102C and 185. Planning and management of forests to meet multiple objectives of land owners and the society. Process and organization of land data and forest ecosystem dynamics for quantitative analysis with GIS. Fundamentals of land-use planning, valuation, multiple goal decision analysis, and forest management scheduling. (F) Staff

184. Agroforestry Systems. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Upper division standing. Agroforestry principles and systems are examined, with emphasis on contemporary temperate agroforestry system design and management. Economic, biologic, social, and political conditions for successful agroforestry systems will be discussed. Agroforestry systems will be field trips that will extend beyond the scheduled lab time. (SP) Altieri

185. Applied Forest Ecology. (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: 102A or course in community ecology. Conceptual basis of silviculture for the establishment, growth, composition, and quality of forest trees and stands. Silviculture is presented as a tool to meet multiple resource and ecosystem management goals, and water and wildlife sustainable use, watershed, forest health, or timber production. Two weekend field trips will be scheduled in lieu of several laboratories. (F) O'Hara

186. Management and Conservation of Rangeland Ecosystems. (4) Three hours of lecture and one hour of discussion per week. Begins with the distribution and domestication of grazing animals, continues through ranching and rangeland stewardship practices, and explores new institutional arrangements for conservation, tenure, and markets, and how shrublands provide biodiversity, wildlife habitat, watershed, recreation, open space, and forage. The course will introduce rangelands as complex ecosystems and the human components affecting them. (SP) Staff

188. Case Histories in Wildlife Management. (4) Four hours of seminar per week. Prerequisites: 114. Seminar format with presentation and discussion by each student, with long term paper requirement. Examination in depth of current issues in wildlife management. (SP) Barrett

189. Senior Workshop in Professional Forestry. (3) Two hours of lecture per week plus two weekend field trips per semester. Prerequisites: Senior or graduate standing. Consent of instructor. A capstone workshop with faculty and outside professionals for students planning to enter the field of professional forestry. The workshop develops a student’s research, writing, and oral presentation skills to enhance critical capacities about real-world dynamics and how professional performance fits with them. Student projects and oral presentations are integral to the course. (F,SP) Staff

Special Topics and Independent Studies

190. Seminar in Environmental Issues. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Upper division standing and consent of instructor. Interdisciplinary study of issues for advanced students. Designed to develop skills in critical analysis of specific issues. Different topics will be available each semester to fulfill faculty and student interest. Major research project required. (F,SP) Staff

C191. The American Forest: Its Ecology, History, and Representation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division standing in a resource management major. Formerly 181. Course details the fulfillment of human needs through forest operations, coupled with the management required to make operations culturally and environmentally appropriate. The framework for understanding human interaction within forested environments includes the operational mesh of technical, social, economic, organizational, and ecological factors. The worldwide range of stewardship activities includes access, product harvest, tree tending, regeneration, and protection. (F,SP) Staff

192. Molecular Approaches to Environmental Problem Solving. (2) Two hours of lecture/discussion per week. Prerequisites: Junior or senior standing in Molecular Environmental Science or consent of instructor. Seminar in which students consider how modern biotechnological approaches, including recombinant DNA methods, can be used to recognize and utilize organisms in the context of land management, habitat and endangered species preservation, agriculture and environmental pollution. Students will also develop and present case studies of environmental problems solving using modern molecular methods. (F) Lindow

C193A. Environmental Education. (3) Five and one-half hours of lecture/discussion and six hours of fieldwork per week. Theory and practice of translating ecological knowledge, environmental issues, and values into educational forms for all age levels and all facets of society, including schools. Concentrated experience in participatory education. Also listed as Education C193A. Hurst

C193B. Environmental Education. (3) Five and one-half hours of lecture/discussion and six hours of fieldwork per week. Theory and practice of translating ecological knowledge, environmental issues, and values into educational forms for all age levels and all facets of society, including schools. Concentrated experience in participatory education. Also listed as Education C193B. Hurst

194. Senior Seminar in Conservation and Resource Studies. (2) Two hours of seminar per week. Prerequisites: Senior standing in CRS major. Seminar in which students synthesize their knowledge, skills, and interests into a holistic perspective. A one-hour oral presentation in the area of interest and a senior thesis synthesizing the area of interest are required. Required final semester for all CRS majors. (F,SP) Staff

195. Senior Thesis. (3-4) Students who have successfully completed 195 may petition for exemption from 194. Three hours of laboratory/research work

B prefix=language course for business majors C prefix=course satisfies R&H requirement H prefix=honor's course R prefix=course satisfies AC requirement AC suffix=course satisfies American Cultures requirement

*Professor of the Graduate School †Recipient of Distinguished Teaching Award

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H196. Internship in ESPM—Field Module. (3-8) Fifteen to forty hours per week at placement location for 10 weeks. May be taken on a pass/not pass basis. Prerequisites: Upper division standing, consent of adviser, faculty sponsor, and ESPM department; normally restricted to ESPM majors. Intern placement subject to student's academic interests and career objectives. Must be approved early in preceding semester. See "Internship Guidelines," available in ESPM student services office. (F,SP) Staff

196B. Internship in ESPM—Research/Seminar Module. (2-5) Two hours of seminar per week; variable hours of analysis for five weeks. Prerequisites: Upper division standing, consent of adviser, faculty sponsor; completion of 196A. A five-week period for the student's analysis of historical and contemporary issues in ecology; preparation and presentation of a written report to the department. Submission of no more than 300 words required for approval. (F,SP) Staff

197. Field Study in Environmental Science, Policy, and Management. (1-3) Course may be repeated for credit. Three hours of fieldwork per week per unit. Must be taken on a pass/not pass basis. Prerequisites: Upper division standing, consent of instructor; campus and departmental restrictions apply. Applied experience off-campus organizations relevant to specific aspects of environmental science, policy, and management. Subjects must be approved by the department chair of the student's major department and participation in a weekly seminar required of all returning interns. (F,SP) Staff

198. Directed Group Studies for Advanced Undergraduates. (1-3) Course may be repeated for credit. Three hours of work per week per unit. Must be taken on a pass/not pass basis. Prerequisites: Upper division standing; consent of instructor; campus and departmental restrictions apply. Group study of special topics in environmental science, policy, and management that are not covered in depth in regular courses in the department. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Three hours of work per week per unit. Must be taken on a pass/not pass basis. Prerequisites: Upper division standing; campus and departmental restrictions apply. Enrollment restrictions apply; see "the Introduction to Courses and Curricula" section of this catalog. Supervised individual study and research specific to aspects of environmental science, policy, and management. (F,SP) Staff

Graduate Courses

201A. Research Approaches in Environmental Science, Policy, and Management. (3) Two hours of lecture/discussion one hour of seminar per week. Prerequisites: Graduate standing in ESPM. Formerly 200B. Research projects and approaches in environmental science, policy, and management. Introduction to the diverse ways in which environmental problems are researched in the world's top environmental science programs. This course is the first of the core course sequence required for all ESPM graduate students. (F,SP) Staff

201B. Case Studies in Environmental Science, Policy, and Management. (3) Three hours of lecture per week. Prerequisites: 201A and graduate standing in ESPM. Formerly 200A. This course applies the conceptual and methodological elements of Environmental Science, Policy, and Management 201A, incorporating specific local case histories to emphasize a strong field component and cover an array of issues representative of the ESPM program. Includes two field trips. This course is the second semester of the core course required for all ESPM graduate students. (SP) Staff

201C. Environmental Forum. (1) Course may be repeated for credit. Two hours of seminar/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in ESPM. Course requires current analysis of current topics in environmental science, policy, and management. This course is required for all ESPM doctoral students. (F,SP) Staff

201S. Environmental Science, Policy, and Management Colloquium. (1) One and one-half hours of seminar/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Seminars for the presentation and discussion of original work by faculty, visiting scholars, and graduate students. Core course for the ESPM graduate program. (F,SP) Staff

202. Advanced Natural Resource Sampling. (2) One and one-half hours of seminar per week. Prerequisites: 102B. This seminar focuses on important sampling designs (simple random, systematic, stratified, cluster, multistage, multicounty, and adaptive) used in natural resources and ecology. We critique research articles for appropriateness of their sampling design in meeting specified research objectives. Attendees will present their sampling designs and their relative merits are discussed. (F) Biging

C204. Research Reviews in Animal Behavior: Behavior Review. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Prerequisites: Graduate standing, basic course in animal behavior. This course is open to graduate students. This course will discuss current publications in animal behavior. A student will summarize a paper and lead the discussion that follows. Occasionally, the group reviews a manuscript in preparation, or a thesis proposal. Not all participants need report, but all are expected to attend and enter into the discussions. Guest lecturers are invited each semester. Also listed as Integrative Biology C204 and Psychology C204. (F,SP) Staff

C205. Quantitative Methods for Ecological and Environmental Modeling. (3) Three hours of lecture per week. This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental science graduate research. The course will cover topics such as the methods for setting up difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will also be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management. Also listed as Integrative Biology C205 and Energy and Resources Group C205. (F) Staff

208. Seminar in Ecological Genetics. (2) Two hours of seminar per week. Current topics and methods related to the genetics of organisms and their interdependence with ecological variables. (F) Dodd

209. Pathogen and Disease Ecology. (1) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. Course and study of current topics in pathogen and disease ecology. (F) Almeida

210. Spatial Data Analysis for Natural Resources. (3) Three hours of lecture per week. Prerequisites: One year of upper division probability and statistics, one course in multivariate analysis, or consent of instructor. An introduction to natural resource spatial data analysis. Course is covered to include spatial sampling, quadrate analysis, distance methods, spatial point patterns and Ripley’s K function, spatial autocorrelation, and geostatistics (Kring). Readings will cover applications in various natural resource fields as well as general theory. (SP) Biging

Environmental Science

C211. Modeling Ecological and Meteorological Phenomena. (3) Students will receive no credit for C211 after taking Integrative Biology C217. Three hours of lecture per week. Prerequisites: Integrative Biology C129 or consent of instructor. This course focuses on modeling methods in ecology and meteorology; stability analysis; effects of anthropogenic stress on natural systems. Also listed as Energy and Resources Group C202. Harte

214. Race, Science, and Resource Policy. (3) Three hours of lecture/seminar per week. This course is an interdisciplinary examination and strategy for advancing race and resource policy with an emphasis on whether, why, and how: (a) race distributes access to and control of environmental resources; (b) science creates and arrays perceptions, organization and, control of these resources; and (c) public policy shapes racial disparities in natural resource opportunities. Topics are drawn primarily from issues in metropolitan, agricultural, and public resource systems. (F) Romm

220. Isotope Biogeochemistry. (5) Three hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing. Use of isotopes in present and past terrestrial and aquatic research. Lectures cover the principles of isotope distribution on Earth and the isotope chemistry of natural systems. Students will participate on student presentations of case studies and research proposals. In the laboratory, students prepare samples for choice for isotopic analyses. Also listed as Integrative Biology C226. (SP) Amundson, Dawson, Ingram, Mambelli

222. Surface and Colloid Chemistry of Natural Particles. (3) Three hours of lecture per week. Prerequisites: 126 or consent of instructor. Structure and chemistry of natural colloidal systems in aqueous systems; solute adsorption mechanisms and theoretical models; interparticle forces and colloidal phenomena; applications to biogeochemistry and contaminant hydrology. Offered even-numbered years. (SP) Sposito

C225. Isotopes. (2) Three hours of seminar for ten weeks. Must be taken on a satisfactory/unsatisfactory basis. This seminar will explore current topics that employ the use of stable isotopes. Discussion topics include the areas of biology, paleontology, bio- geochemistry, soil science, and atmospheric science. Students will be required to lead at least one discussion of relevant literature in the topic area. Also listed as Integrative Biology C226. (F) Amundson, Dawson, Mambelli

228. Advanced Topics in Biometeorology and Micrometeorology. (2) Two hours of lecture per week. Prerequisites: C129 or consent of instructor. Measurement and modeling of trace gases and energy between the terrestrial biosphere and atmosphere. Micrometeorological flux measurement methods, including eddy covariance, two-layer, and multi-layer models that couple energy, water, and carbon to predict trace gas concentrations are presented. How models integrate information from leaf to canopy to landscape scales is discussed. (SP) Baldocchi

233. Geographic Information Systems for Environmental Science and Management. (3) Three hours of lecture and four hours of laboratory per week. Prerequisites: Introduction to Geographic Information Systems (GIS). The objectives of the course are to: (1) review the GIS basics (data, analysis, and production) with special reference to data used in managing the California environment; (2) experience the issues surrounding, and algorithms used in, a particular GIS application; and (3) develop an operational GIS project in a chosen area. This course is divided into two sections: (1) an introduction section covering geospatial data input, manipulation, analysis, and effective communication using common geospatial data from California sources; (2) a section
that discusses linkages with other GIScience disciplines; (3) a topic based case-study portion; and (4) a project development phase. Topics will need to have major relevance and capability for an agency-for-profit, or similar type of group involved in environmental management. There will be lectures and labs throughout the class, although lab time nearer the end of the term will be focused on class projects. Reading will be assigned throughout, and class discussion held. The final class period will be used as an "illu-
trated paper" session, in which final projects are displayed and discussed. (F) Kelly

238. Special Topics and Advanced Seminars in Plant Ecology. Lecture may be repeated for credit. 

248. Special Topics and Advanced Seminars in Entomology. Course may be repeated for credit.

248C. Seminar in Parasitology. (1) Two hours of seminar per week. Discussion on the advances in medical entomology/parasitology through individual presentations prepared by students. (SP) Lane

Resource Policy

250. Environmental History. (4) Three hours of lecture/discussion per week. Prerequisites: Upper division course in environmental history, philosophy, and ethics, with special emphasis on the American environment. Topics will include environmental historia-
tography, theories of environmental history, and the relationship between environmental history, phil-
osophy, ethics, ecology, and policy. Offered odd-numbered years. (F) Merchant

251. International Conservation and Development Policy. (3) Three hours of lecture/discussion per week. Prerequisites: Upper division course in international development. Changes in Third World rural economy, ecology, and environment and ways in which these are affected by development policies. Historical and current trends in environmental policies. Changing patterns of rural production (espe-
cially food) and resource use; alternative theories of natural resource and socioeconomic development; linkages between socioeconomic and environment in agrarian change and development policy; technology and resource control; conservation and development problems. (SP) Can

252. Seminar in Forest and Wildland Resource Policy Analysis. (3) Course may be repeated for credit. Two hours of lecture/seminar per week. The seminar addresses: (1) methods of policy analysis for wildland resource issues, (2) applications of analysis in policy formation, and (3) processes of policy formation and decision-making through these phases for a specific policy problem selected each year. (SP) Romm

253. Advanced Readings in Political Ecology. (4) Three hours of seminar per week. Prerequisites: Consent of instructor; significant background in social theory. Critique and comparison of literature in political ecology—an approach to sociological analysis of environmental change focusing on environmental con-
flict. Initial sessions address the definition of political ecology, its origins, and the politics and discourses of natural resource management. Literature includes domestic and international research involving the com-
binat of social and environmental history, local per-
spectives, and political economy to discuss accounts of social and environmental change. (SP) Franklin

C255. Seminar in Sociology of Forest and Wild-
land Resources. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly 255. Individual projects and group discussions concerning social constraints to, and effects of, natural resource planning and management. Literature includes domestic and international research on the com-
bination of social and environmental history, local per-
spectives, and political economy to discuss accounts of social and environmental change. (SP) Franklin. Also listed as Geography C250. (F) Fortmann

256. Science, Technology, and the Politics of Nature. (3) Three hours of seminar per week. This course will introduce the methods and theories of Science and Technology Studies (STS) in order to explore the relationships among science, technology, law, and politics in the domains of environment and health. The course will focus some attention on the tension between technocracy and democracy in sci-
cence policy, and on the role of biotechnology in re-
shaping the natural and political order. The course will engage students in the sociologies of science, law, life sciences, and public policy with theoretical and practical tools for analyzing complex problems at the science, technology, and society interface. Offered even-numbered years. (SP) Winickoff

258. Race, Science, and Resource Policy. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division course in environmental policy or social science. Contempo-
rary issues of racial and environmental policy; the impacts of globalization on the environment; compar-
ative transnational environmental movements. Study of current and historical texts. Cases studies drawn from around the world. Focus on methods and research techniques. (F) O'Neil

260. Governance of Global Production. (3) Three hours of seminar per week. This course explores crit-
ical policy and theoretical questions in the governance of global production. Current trends in the restruc-
turing of industrial production, including the roles of labor, technology, and the state; new strategies for egalitarian and sustainable solutions. (SP) O'Hara

264. Silviculture Seminar. (1) Course may be repeated for credit. Two hours of seminar per week. Prerequisite: Consent of instructor. A semi-
inar covering various aspects of silviculture and related issues. (F) O'Hara

Resource Management

265. Seminar on Fire as an Ecological Factor. (2) Course may be repeated for credit. Two hours of lecture/seminar per week. Effect of fire on ecology of forest and rangeland. (F) Stephens

266. Seminar in Forest Ecology. (2) Course may be repeated for credit. Three hours of seminar per week. May be taken on a satisfactory/unsatisfactory basis. Seminar dealing with selected topics in the ecology of forests. (SP) McBride, Battles

268. Seminar in Range Ecology. (2) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. A semi-
inar dealing with selected topics in ecology of rangelands. (F) Staff

271. Advanced Remote Sensing of Natural Re-
sources. (3) Three hours of lecture/seminar per week. Prerequisites: 172, Statistics 20, or consent of instruc-
tor. Advanced photographic systems. Nonphotograph-
ic remote sensing systems including sonar, imaging spec-
trometry, thermal, and RADAR. The use of digital image processing, geographic information systems (GIS) and accuracy assessment. A look into linking remote sensing, vegetation and土壤 analysis of multisource spatial data. Laboratories and application projects are to be arranged. Offered odd-numbered years. (F) Gong

274. Case Studies in Forest Management. (1-6) Course may be repeated for credit. Minimum of four hours per week per unit. Hours to be arranged. Prerequisites: 117, 172, 183, and 185, or equivalent. Indi-
vidual case studies involving the inventory, analysis, and management of forest resources. (F,SP) Staff

276. Advanced Silviculture. (2) Two hours of lecture per week. Prerequisites: 185 or equivalent. Adv-
anced topics related to the dynamics and manage-
ment of forest stands, such as competition effects, mixed-species interactions, mitigated stand silvicult-
ure, pruning, thinning regimes, management for old
growth features, wood quality effects, and others. Presentations may be included. Offered odd-numbered years. (SP) O'Hara

277. Advanced Topics in Conservation Biology. (3) Three hours of lecture and two hours of discus-
sion per week. Prerequisites: Undergraduate courses in ecology, population biology, or conservation biol-
ogy. A graduate level seminar covering advanced topics in conservation biology, focused on designing protected area networks. We will first lay the groundwork for the course by exploring the fun-
damental papers in ecology and conservation biology that led to systematic conservation planning. Then, we will study various issues at the current frontiers of the discipline, such as incorporating threats, costs, evolutionary processes, and ecosystem services into
reserve network design. The class will encourage stu-
dent engagement through discussions, peer instruction and peer review of essays. (SP) Kremen

278. Range Assessment. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 186 and one semester of statistics. Rangeland vege-
tation sampling techniques with emphasis on com-
paring the relative efficiency of different techniques in vegetation measurements. Labs will involve lab-
exercises on artificial sampling boards and/or in the field. Juniors and seniors are encouraged. Offered odd-
numbered years. (SP) Allen-Diaz

279. Seminar on Pastoralism. (3) Two hours of lec-
ture per week plus four field trips. Prerequisites: Con-
sent of instructor. A survey of livestock manage-
ment and production systems, as they influence and are influenced by the rangeland environment. Review of the evolution of animal management practices; contemporary management in Africa, Asia, the Middle East, and worldwide; and production systems with both traditional and nontraditional goals. Examination of agroforestry and nomadic and transhumant grazing systems, sheep and cattle production, game ranch-
ing, and organic meat production will be included. (SP) Huntsinger

280. Seminar in Range Ecosystem Planning and Policy. (3) Course may be repeated for credit. Three hours of lecture/seminar per week. Prerequisites: Con-
sent of instructor. A seminar dealing with selected current topics in range ecosystem planning and policy. (F) Bartolome

281. Seminar in Wildlife Biology and Management. (2) Course may be repeated for credit. Two hours of lecture/seminar per week. Prerequisites: 114 and 187. Reading, conference, and discussion. Reports and discussion of recent studies in wildlife biology and management. Open to qualified graduate students from other departments. (F) Staff

284. Demographic Methods for Population Viabil-
ity Analysis. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of in-
structor. Application of demographic methods to the manage-
ment of plant and animal populations. Con-
temporary problems for populations of threatened or exploited species will be emphasized. Implications for life-history theory will also be dis-
cussed. Demographic analyses include: (1) an under-
standing of life cycle diagrams, projection matrices, age-class, and stage-based survival and growth; (2) calcula-
tion of population growth rate and sensitivity of demo-
graphic parameters to perturbation; and (3) advanced techniques of stochastic simulation modeling, spatial analysis, and population genetics will be learned. Offered even-numbered years. (F) Beissinger

285. Special Topics Seminar: Forests and Water. (1) One hour of lecture/readings/discussion per week. Forests are vital for rural and urban populations all over the world. They are an essential natural resource
Environmental Sciences (College of Letters and Science and College of Natural Resources)

Environmental Science (B.S.) degree. Major and breadth requirements appear below.

Choice of College

Students can complete a major in environmental sciences in either the College of Letters and Science for a Bachelor of Arts (B.A.) degree or the College of Natural Resources for a Bachelor of Science (B.S.) degree. Major and breadth requirements are identical for all students, regardless of college. Please refer to the web site of the appropriate college for details. All students must complete the L&S seven-course breadth requirements and essential skills requirements before graduation. Junior transfer students may satisfy these requirements by completing IGETC.

Environmental Sciences

The environmental sciences major is supervised by an interdepartmental and intercollege faculty committee and is jointly administered by the College of Letters and Science and the College of Natural Resources. The curriculum of the major emphasizes a broad and comprehensive education in the fundamentals of biology, chemistry, physics, and mathematics, and in social science directly related to environmental problems. Such training is indispensable for those who wish to acquire more than a superficial understanding of the impact of human activities on the environment. Students acquire the necessary skills to rigorously document and predict environmental problems and to make sound recommendations for their avoidance or mitigation.

The environmental sciences major is concerned with interactions between human activities and biological and physical environments on all scales, from local to global. Students elect to emphasize one of three disciplinary fields: biological science, physical science, or social science. The differences between these emphases lie mainly in upper division electives; most required courses, both lower and upper division, are virtually the same for each of the three emphases. Details of course requirements appear below.

The senior research seminar, Environmental Sciences 196A-196B, in which students work intensively on individual research projects under faculty guidance, is a key feature of this major.

Declaring the Major—College of Letters and Science

To be considered for admission to the major in environmental sciences, students need to have completed Environmental Sciences 10 and at least half of the required lower division courses; and to have at least a 2.0 GPA in courses taken for the major.

Declaring the Major—College of Natural Resources

Students in the College of Natural Resources may enter as freshmen into the environmental sciences major. Students wishing to transfer from another major and/or college should contact the undergraduate adviser, Susan Kishi, in 260 Mulford Hall, by e-mail at kishi@nature.berkeley.edu, for details.
Required Courses for All Three Areas of Emphasis (Biological, Physical, Social Science)

Lower Division Major Requirements

Environmental Sciences 10; Environmental Economics and Policy (EEP) C1 or Economics C3; Biology 1A-1B (required for biological science) or Biology 111/11L plus one of the following: Environmental Sciences, Policy, and Management (ESPM) 102A, 113, 114, 115B, 116A, 116B; Integrative Biology 153, 154, 155 (option for physical and social science only); Chemistry 1A and 3A (for biological and physical science); Chemistry 1A and either 1B or 3A for social science; Mathematics 1A-1B (required for physical science, recommended for biological and social science); Mathematics 16A-16B may be substituted for biological and social science; Physics 7A-7B (required for physical science), Physics 8A for biological and social science.

Upper Division Major Requirements

Energy and Resources 102 or ESPM C104/EES C115; Earth and Planetary Science C120/Environmental and Resources Group C130, Public Health 142A, or Statistics 131A (prerequisite to EnVSci 100); Environmental Sciences 100 (prerequisite to 196A-196B); Environmental Sciences 196A and 196B/L.

One of the following: Environmental Sciences 125, EPS 170AC/L&70AC, ESPM 102D, 153, or 155, ESPM 160AC/History 120AC, ESPM 163AC/Sociology 128AC, ESPM 165 or 168, EEP C101/Environmental and Geography 130.

In addition, students must take at least one upper division course in the chosen area of emphasis (biological, physical, social science). Please check with your college office for the list of approved courses or go to environmentalsciences.berkeley.edu.

Students are required to have a minimum of 30 upper division units of major coursework. Any remaining units may come from courses on the electives list.

Honors Program

To be eligible for honors, students must meet the minimum GPA established by their college. See Carol Snow (L&S) or Susan Kishi (CNR) for further details.

Lower Division Courses

10. Introduction to Environmental Sciences. (3) Three hours of lecture and one hour of discussion per week and one eight-hour fieldtrip per semester. A survey of biological and physical environmental problems, focusing on geologic hazards, water and air quality, water supply, solid waste, introduced and endangered species, preservation of wetland ecosystems. Interaction of technical, social, and political approaches to environmental management. (F,SP) Staff

10L. Field Study in Environmental Sciences. (1) Two hours of fieldwork per week. Prerequisites: 10 (must be taken concurrently). Field and laboratory studies of Strawberry Creek throughout its course from the hills to the Bay are used to exemplify integration of the physical, biological, and social components of science-based approaches to environmental management. (F,SP) Berry, Kondolf

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded at a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Berry

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks.

Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunities for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Berry

98. Directed Group Study. (1-4) Course may be repeated for credit as topic varies. Group meets as a class of various lengths. Must be taken on a passed/not passed basis. Group studies of selected topics which vary from semester to semester. Enrollment restrictions apply; see the "Introduction to Courses and Curricula" section of this catalog. (F,SP) Staff

Upper Division Courses

100. Introduction to the Methods of Environmental Science. (4) Three hours of lecture, one hour of discussion, and one and one-half hours of fieldwork per week. Prerequisites: Environmental science statistics requirement. Open only to declared environmental sciences majors. Introduction to basic methods used in environmental research by biological, physical, and social scientists. The course is designed to teach skills necessary for majors to conduct independent research research in the required senior seminar, 196A-196B/196L. Topics include development of research questions, sampling methods, experimental design, statistical analysis, scientific writing and graphics, and introductions to special techniques for characterizing environmental conditions and features. This course is the prerequisite to 196A, from which the senior thesis topic statement is determined. (SP)

125. Environments of the San Francisco Bay Area. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: Introduction to botany and biology, chemistry, and earth science; or one of the Berkeley core science courses. Focuses on the physical and biological components of the San Francisco Bay Area ecosystem. (F,SP) Staff

196A-196B. Senior Research Seminar in Environmental Sciences. (3) Four hours of seminar per week. Prerequisites: Senior standing in the E.S. major and 100. Seminar and published research reports giving detailed attention to a specific, current environmental problem in the Bay Area. (F,SP) Staff

196L. Senior Research Laboratory in Environmental Sciences. (1) Course may be repeated for credit. Three hours of laboratory per week. Prerequisites: 196A-196B. Independent laboratory or field research in support of the required senior seminar project. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Regulations set by College of Letters and Science. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topic will vary from semester to semester. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Independent study. Must be taken on a passed/not passed basis. Prerequisites: Enrollment is restricted by regulations listed in this catalog. (F,SP) Staff

Epidemiology

(School of Public Health, Interdepartmental Graduate Groups)

Department Office: 101 Haviland Hall, (510) 643-9912 epi.berkeley.edu/programs.htm
Chair: Arthur Reingold, M.D.

Professors

Barbara Abrams, Dr.P.H. (Public Health)
Patricia Biffer, M.P.H., Ph.D. (Public Health)
Robert Dahi, M.D. (Public Health)
Brenda Eskensani, M.A., Ph.D. (Public Health)
Arthur Reingold, M.D. (Public Health)
Allan Smith, M.D. Ph.D. (Public Health)
Ina Tager, M.P.H., M.D. (Public Health)
Gladyis Block (Emerita), Ph.D.
Warren Winklstein Jr. (Emeritus), M.P.H., M.D.

Associate Professor

Lisa Barcelllos, Ph.D. (Public Health)

Assistant Professors

Jennifer Aehm, M.P.H., Ph.D. (Public Health)
Mahasin Muthyal, Ph.D. (Public Health)

Associate Adjunct Professor

Maria L. Ekstrand, Ph.D. (Public Health)

Adjunct Professors

Michael Bates, Ph.D. (Public Health)
Robert Hsiet, M.P.H., Ph.D. (M.D. (Public Health)
Nancy Padrian, M.P.H., Ph.D. (Public Health)
David Ragland, M.P.H., Ph.D. (Public Health)
Gary Shaw, M.P.H., Dr.P.H., Ph.D. (Public Health)

Adjunct Assistant Professors

Tomas Aragon, M.D., Dr.P.H. (Public Health)
Hedi Bauer, M.P.H., M.S., M.D. (Public Health)
Andar P. Chokkalingham, Ph.D. (Public Health)
Gatherine DeMayer, Ph.D., M.D. (Public Health)
Alexandra Minnis, M.P.H., Ph.D. (Public Health)
Kathleen Mortimer, Ph.D. (Public Health)
Craig Stearnsma, M.P.H., Ph.D., M.D. (Public Health)
Shiui-Ping Constance Wang, M.Sc., Ph.D. (Public Health)

Clinical Professor

James Chin, M.P.H., M.D. (Public Health)

Program Overview

The Ph.D. group in epidemiology is interdisciplinary and includes faculty from a number of departments at Berkeley as well as a number of institutions in the Bay area, including U.C. San Francisco (UCSF). Students receive either an M.S. or Ph.D. degree from the Graduate Division of the Berkeley campus. The group is within the academic jurisdiction of the Graduate Council and is administratively located in the Division of Epidemiology.

The group brings together faculty with disciplinary knowledge in epidemiology, biostatistics, demography, sociology, anthropology, behavioral science, molecular biology, genetics, vector biology, and other fields relevant to the study of human health and disease at a population level. M.S. and Ph.D. students receive a strong background in epidemiologic and biostatistical methods and theory and, in addition, must choose a third disciplinary area in which to develop competence. Doctoral dissertation research is generally focused on a specific area of epidemiologic research with the students focusing new knowledge about the factors that influence the distribution of health or given disease outcomes within human populations.

Epidemiology / 269

R prefix=course satisfies R&C requirement

AC suffix=course satisfies American Cultures requirement

H prefix=honors course

prefix=language course for business majors
Ethnic Studies
(College of Letters and Science)

Department Office: 506 Barrows Hall, (510) 643-0796
ethnicstudies.berkeley.edu
Chair: Beatriz Manz, Ph.D.

Professors
Thomas J. Bilbi, Ph.D. (Native American Studies)
Evelyn N. Hernandez, Ph.D. (Chicano Studies)
Elaine H. Kim, Ph.D. (Asian American Studies)
Beatriz Manz, Ph.D. (Chicano Studies)
José Saldívar, Ph.D. (Chicano Studies)
Sau-ling C. Wong, Ph.D. (Asian American Studies)
Norma Alipaz (Chicano Studies Emerita), Ph.D.
Mario Barrera (Chicano Studies Emeritus), Ph.D.
Patricia P. Hilden (Native American Studies Emerita), Ph.D.
Carlos Muñoz Jr. (Chicano Studies Emeritus), Ph.D.
(Honrad T. Takiwaki (Asian American Studies Emeritus), Ph.D.

Associate Professors
Catherine C. Choy, Ph.D. (Asian American Studies)
Ramon Grostegue, Ph.D. (Chicano Studies)
David Montejano, Ph.D. (Chicano Studies)
Michael Omi, Ph.D. (Asian American Studies)
Laura Pérez, Ph.D. (Chicano Studies)
Alex M. Saragoza, Ph.D. (Chicano Studies)
Katharyna Um, Ph.D. (Asian American Studies)
Margarita B. Melville (Chicano Studies Emerita), Ph.D.
L. Ling-chi Wang (Asian American Studies Emeritus), M.A.

Assistant Professor
Beth Pietro, Ph.D. (Native American Studies)

Adjunct Professor
Robert Allen, Ph.D. (African American Studies/ Ethnic Studies)

Assistant Adjunct Professor
Raymond Telles, M.F.A. (Chicano Studies)

Lecturer
Victoria Robinson, Ph.D. (Ethnic Studies)

Undergraduate Major Adviser: Mr. St. Germaine

The Major Group in Ethnic Studies

The group major in ethnic studies provides a core curriculum designed to develop a comprehensive and multidisciplinary understanding of the experiences and communities of African Americans, Asian Americans, Chicanos, and Native Americans.

Students majoring in ethnic studies study the history, culture, politics, and sociology of Third World communities, events, and movements from the general context of American society and institutions. Thus, they pursue knowledge vital for a critical understanding of contemporary society and for social change to improve the lives and communities of racial minorities. Ethnic studies majors also prepare themselves for advanced graduate study in either academic or professional fields.

Major Requirements

Lower Division. Ethnic Studies 10AC and 11AC. Completion of one additional elective course from either African American Studies, Asian American Studies, Chicano Studies, Ethnic Studies, Native American Studies, or an ethnic studies-related course from another department.

Upper Division. Ethnic Studies 101A, 101B, and 190. Completion of three elective courses from Ethnic Studies 100, 103, 122AC, C126, 130AC, 135AC, 139A, 141, N144, 145AC, 159AC, C170, C173, 180, or 190. Completion of two additional elective courses from either African American Studies, Asian American Studies, Chicano Studies, Ethnic Studies, Native American Studies, ethnic studies-related courses from other departments, or an approved EAP course. Ethnic Studies 197 (4 units cumulative).

Honors. The Department of Ethnic Studies provides a program leading to the A.B. degree with honors. Students will be recommended for honors if they have completed at least 30 units and two semesters with an average GPA of at least 3.3 for all work undertaken in the Department of Ethnic Studies and have been approved specifically for honors by the department chair upon recommendation by the faculty adviser for the group major. Honors students will be required to complete Ethnic Studies H196, Senior Honors Seminar for Ethnic Studies Majors. In addition, a graduate in an A.B. degree with honors, students must obtain at least 3.3 GPA for all coursework undertaken at the University.

The Minor

Requirements. Completion of three courses in Ethnic Studies 100, 101A, 101B, 122AC, 126, 130AC, 135AC, 136, 141, 144AC, 147, 155AC, 159AC, C170, 173, 190, 190AC, or 195; completion of two additional elective courses from either African American Studies, Asian American Studies, Chicano Studies, Native American Studies, ethnic studies-related courses from other departments, or an approved EAP course.

Lower Division Courses

10A. A History of Race and Ethnicity in Western North America, 1598-1986. (4) Three hours of lecture and one hour of discussion per week. This course explores the role of “race” and ethnicity in the history of what became the Western United States from the Spanish invasion of the Southwest to contemporary controversies surrounding “race” in California. Rather than providing a continuous historical narrative, or treating each racialized “other” separately, the course works through a series of chronologically organized events in which issues of racial differences played key roles in creating what became a western identity. (F) Staff

10AC. A History of Race and Ethnicity in Western North America, 1598-Present. (4) Three hours of lecture and one hour of discussion per week. This course explores the role of “race” and ethnicity in the history of what became the Western United States from the Spanish invasion of the Southwest to contemporary controversies surrounding “race” in California. Rather than providing a continuous historical narrative, or treating each racialized “other” separately, the course works through a series of chronologically organized events in which issues of racial differences played key roles in creating what became a western identity. This course satisfies the American Cultures requirement. (F,SP) Staff

10B. Theories and Concepts in Comparative Ethnic Studies. (4) Three hours of lecture and one hour of obligatory discussion per week. This course introduces the key theories, concepts with which all majors should be familiar. (F,SP) Staff

20AC. Introduction to Ethnic Studies. (4) Three hours of lecture and one hour of discussion per week. Formerly 20. The University, its relationship to corporate structures, community people, and specifically, Third World people will be analyzed. The University’s values will be critically examined. This course satisfies the American Cultures requirement. (F) Staff

21AC. A Comparative Survey of Racial and Ethnic Groups in the U.S. (4) Three hours of lecture and one hour of discussion per week. Formerly 21. This survey course will examine the historical experiences of European immigrants, African Americans, and Latinos, emphasizing the themes of migration and economic change since the late 19th century. Though the course flows chronologically, the course will also address salient features of the experiences of Asian Americans, Native Americans, and recently arrived immigrants in light of the themes of the course. Intragroup differences such as class and gender will be discussed. This course satisfies the American Cultures requirement. (SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded as passed/not passed basis. Freshman seminars are offered by faculty members in departments and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Sections 1-2 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP) Staff

41AC. A Comparative Survey of Protest Movements Since the 60s. (4) Three hours of lecture and one hour of discussion per week. Formerly 41. An introductory, comparative, and interdisciplinary study of Native American, Mexican American, African American, and Asian American social and political struggles from 1960 to the present. The course traces the development of protest movements created by people of color in response to racial, class, gender, and political inequality in the context of U.S. politics and history. The course critically examines the internal and external factors contributing to the rise and fall of social and political movements and concludes with an analysis of the current conjuncture of race, ethnicity, culture, class, gender, and sexual preference in U.S. politics. This course satisfies the American Cultures requirement. (F,SP) Staff

C73AC. Indigenous Peoples in Global Inequality. (4) Three hours of lecture per week. This course examines the history of indigenous, aboriginal, native, or “tribal” peoples over the last five centuries. Particular attention is paid to how these peoples’ rights/relations with an expanding Europe, capitalist development, and modern nation-states. How have these peoples survived, what are the contemporary challenges that they face, and how have they drawn on the present? Also listed as Native American Studies C73AC. This course satisfies the American Cultures requirement. (SP) Biolesi

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

97. Field Study in Communities of Color. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curriculum” section of this catalog. Each of these courses is fieldwork per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Open to freshmen and sophomores only. Supervised community field study. (F,SP) Staff
98. Supervised Group Study. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of work per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Open to freshmen and sophomores only. Group study of selected topics which will vary from semester to semester. (F,SP) Staff

99. Supervised Independent Study and Research. (1-12) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of work per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Individual research on a topic which will lead to the writing of a major paper. Regular meetings with the faculty sponsor. Limited to freshmen and sophomores. (F,SP) Staff

Upper Division Courses

100. Comparative Ethnic Literature in America. (4) Three hours of lecture and one to three hours of discussion per week. Analysis of how selected works (poetry, short stories, novels, drama, and oral literature) reflect African American, Chicano, Asian American, and Native American consciousness and experiences. (F,SP) Staff

101A. Social Science Methods in Ethnic Studies. (4) Three hours of lecture and one hour of discussion per week. The course provides an overview of social science methods used in ethnic studies fieldwork, archival research, oral histories, literature review, and critical analysis. Emphasis is given to research design, forms of data, research presentation and analysis, and the ethical questions involved in doing research on communities of color. The course will emphasize research in a clear, concise manner, and students will be expected to do a research practicum and present their work in writing on a regular basis. (F) Staff

101B. Humanities Methods in Ethnic Studies. (4) Three hours of lecture and one hour of discussion per week. The course provides an introduction to basic theoretical approaches to the literary and other cultural productions of ethnic or “minority” communities in the United States. It also involves the study of important writings by Latinx/o, Native American, African American, Asian American, and mixed race writers, and to a lesser degree, the visual art production of these same communities. The course will focus with particular care on discourses of racialization, gender, and sexuality. (F,SP) Staff

103. Proseminar: Issues in the Fields of Ethnic Studies. Course may be repeated for credit with consent of instructor. Three hours of seminar/discussion per week. The course provides an introduction to basic theoretical approaches to the literary and other cultural productions of ethnic or “minority” communities in the United States. It also involves the study of important writings by Latinx/o, Native American, African American, Asian American, and mixed race writers, and to a lesser degree, the visual art production of these same communities. The course will focus with particular care on discourses of racialization, gender, and sexuality. (F,SP) Staff

103A. Racialization and Empire. (4) (F,SP)

103B. Ethnicity and the Narrative. (4) (F,SP)

103C. Racialization and Contemporary Communities. (4) (F,SP)

103D. Immigration, Racialization, and Globalization. (4) (F,SP)

103E. Racialization, Gender, and Popular Culture. (4) (F,SP)

122AC. Ethnicity and Race in Contemporary American Films. (4) Three hours of lecture per week. Formerly 122. The depiction of race and ethnic relations in American films from the 1960s to the present. The course covers independent features as well as mainstream blockbusters, including foreign films. This course satisfies the American Cultures requirement. (SP) Staff

126. Ethnicity, Gender, and Sexuality. (4) Three hours of lecture and one hour of discussion per week. Course focuses on the production of sexualities, sexual identification, and gender differentiation across multiple discourses and locations. (F,SP) Staff

126A. Ethnicity, Gender, and Sexuality. (4) Three hours of lecture and one hour of discussion per week. Course focuses on the production of sexualities, sexual identification, and gender differentiation across multiple discourses and locations. Also listed as Lesbian Gay Bisexual Transgender St C148. (F,SP) Staff

130AC. The Making of Multicultural America: A Comparative Historical Perspective. (4) Three hours of lecture and one hour of discussion per week. Formerly 130. How and why did American society become racially and ethnically diverse? This comparative study of racial minorities will examine selected historical developments, events, and themes from the 17th century to the present. This course satisfies the American Cultures requirement. (F,SP) Staff

135A. Contemporary U.S. Immigration. (4) Three hours of lecture per week. Formerly 135. The myth, reality and history of U.S. immigration. This course examines issues related to the recent immigration in a comparative, historical approach. An examination of theories, politics, and policy of U.S. immigration restriction. This course satisfies the American Cultures requirement. (F,SP) Staff

136. Immigrant Women. (4) Three hours of lecture per week. Prerequisites: Upper division standing and consent of instructor. Examines patterns of women’s immigration from a social and historical perspective, with an emphasis on gender and cultural contexts. Special attention to race, ethnicity, and identity issues from woman-centered analysis and methodology. (F,SP) Staff

147. Women of Color in the United States. (4) Three hours of lecture per week. Prerequisites: 20 or the introductory course in Ethnic Studies programs. Examines the history and contemporary situations of Chicana/Latina, African American, Asian American, and Native American women. Conceptual focus will draw on lived experiences and theoretical constructions of race, class and gender. (SP) Staff

150AC. People of Mixed Racial Descent. (4) Three hours of lecture and one hour of discussion per week. Formerly 150. Deals with phenomenon of people of mixed-race descent, focusing on United States but with reference to other nations for comparative purposes. Includes historical perspective, as well as exploring the psychology, sociology, literature, and cinema pertaining to mixed-race individuals. This course satisfies the American Cultures requirement. (F,SP) Staff

159AC. The Southern Border. (4) Four hours of lecture/discussion per week. The southern border—from California to Florida—is the longest physical divide between the First and Third Worlds. This course will examine the social divide where the North-South relations take on a specific spatial and cultural dimension, and as a region which has been the testing ground for such issues as free trade, immigration, human rights, and education. Formerly 186AC and Geography 159AC. This course satisfies the American Cultures requirement. Manz, Shaikin

160. Advanced Seminar in Comparative Ethnic Studies Majors. (3) Three hours of seminar per week. Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Three hours of fieldwork per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Individual research on a topic which will lead to the writing of a major paper. Regular meetings with the faculty sponsor. (F,SP) Staff

169A-H196B. Senior Honors Seminar for Ethnic Studies Majors. (3) Three hours of seminar per week. Credit and grade to be awarded on completion of sequence. Prerequisites: 195, consent of instructor, 3.3 GPA on all University work, and a 3.3 GPA in ethnic studies courses in the major. Research seminar for senior ethnic studies majors designed to support and guide the writing of a senior honors thesis. For senior ethnic studies majors who have been approved for the honors program. (F,SP) Staff

179. Field Study in Communities of Color. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of fieldwork per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Individual research on a topic which will lead to the writing of a major paper. Regular meetings with the faculty sponsor. (F,SP) Staff

180. Selected Topics in Comparative Ethnic Studies. (1-4) Course may be repeated for credit as topic varies. One to three hours of lecture per week per unit. One to one-half to six hours of lecture per week for 10 weeks. Two to seven and one-half hours of lecture per week for eight weeks. Two and one-half to 10 hours of lecture per week for six weeks. Students will examine social dynamics, as well as cultural and intellectual productions by or about communities of color nationally and internationally from different methodological perspectives. (F,SP) Staff

190. Advanced Seminar in Comparative Ethnic Studies. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. In addition to class meetings, an extra assignment/research component will be added to the course to increase contact hours with students. Possible components include additional readings, outside-of-class research projects, and any other project which the instructor feels will add to the value of the course. Topics to be announced at the beginning of each semester. (F,SP) Staff

155. Selected Issues in Comparative Ethnic Studies Research. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: 20 or consent of instructor. Doing research on issues in U.S. communities of color. Students will examine theories of society and do research on topics from different methodological perspectives. Issues will vary from semester to semester. (F,SP) Staff

196. Senior Thesis. (4) Independent study. Prerequisites: Consent of instructor. Writing of a thesis under the direction of member(s) of the faculty. (F,SP) Staff

198. Supervised Group Study. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of fieldwork per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Individual research on a topic which will lead to the writing of a major paper. Regular meetings with the faculty sponsor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-12) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of work per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Individual research on a topic which will lead to the writing of a major paper. Regular meetings with the faculty sponsor. (F,SP) Staff
Ethnic Studies Graduate Group

(College of Letters and Science)

Group Office: 506 Barrows Hall #2570, (510) 643-0796
ethnictudies.berkeley.edu/graduate
Chair: Beatiar Manz, Ph.D.

Professors
William M. Banks III, Ed.D. (African American Studies)
Thomas J. Biolsi, Ph.D. (Native American Studies)
Evelyn Nakamoto Ginther, Ph.D. (Asian American Studies)
Charles Henry, Ph.D. (African American Studies)
Percy Hintze, Ph.D. (Chicano Studies/Chicano American Studies)
Elaine H. Kim, Ph.D. (Asian American Studies)
Michel S. Laguerre, Ph.D. (African American Studies)
José Saldivar, Ph.D. (Chicano Studies)
Sau-Ing C. Wong, Ph.D. (African American Studies)
Norma Alarcón (Chicano Studies Emerita), Ph.D.
Mario Barbera (Chicano Studies Emeritus), Ph.D.
Patricia P. Hildén (Native American Studies Emerita), Ph.D.
Carlos M. Muñoz, Jr. (Chicano Studies Emeritus), Ph.D.
Ronald Takaki (Asian Studies Emeritus), Ph.D.
Margaret Wilkerson (African American Studies Emerita), Ph.D.

Assoc. Professors
Robert Allen, Ph.D.
Beth Piatote, Ph.D. (Native American Studies)
Khatharya Um, Ph.D.
Steven Small, Ph.D. (Chicano Studies)
†Michael Omi, Ph.D.
David Montejano, Ph.D.
Waldo E. Martin, Jr., Ph.D.
Beatriz Manz, Ph.D.
†Ronald Takaki (Asian Studies Emeritus), Ph.D.
Patricia P. Hildén, Ph.D. (Chicano Studies Emerita)
Nelson Maldonado-Torres, Ph.D. (Chicano Studies/Chicano American Studies)

Assistant Professor
Marilyn Fabe, Ph.D.

Staff
Associate Professors
Catherine Choy, Ph.D. (African American Studies)
Ramon Grossoïquel, Ph.D. (Chicano Studies/Ethnic Studies)
Nelson Maldonado-Torres, Ph.D. (Ethnic Studies/Chicano Studies)

Professors
Anton Kaes, Ph.D. (German)
†Kaja Silverman, Ph.D. (Rhetoric)
†Linda Williams, Ph.D. (Rhetoric)
Seymour Chatman (Rhetoric Emeritus), Ph.D.
Carol Clover (Rhetoric, Scandinavian Emerita), Ph.D.

Adjunct Professors
Kristen Whissel, Ph.D.
Jeffrey Skoller, Ph.D.
Miryam Sas, Ph.D. (Comparative Literature)
Greg Niemeyer, Ph.D. (Italian)

Associate Professors
Carol Clover, Ph.D. (Comparative Literature)

Professors
Robert Allan, Ph.D. (African American Studies/ Ethnic Studies)

Adjunct Professor
Robert Allan, Ph.D. (African American Studies/ Ethnic Studies)

Affiliated Faculty: Please contact the graduate group office for current list.

Graduate Advisers: Assoc. Prof. Laura Pérez

The Ethnic Studies Graduate Group doctoral program focuses on the historical and sociocultural study of the core groups racialized in United States history: African Americans, Asian Americans, Chicanos and Latinos, and Native Americans. Trans-disciplinary in approach, the program encourages students to adopt a broad range of theories and methods to analyze the construction of these racialized ethnocultural groups in relation to each other, in the Euro-American context, and in a transnational context.

The Ethnic Studies Ph.D. Program is a graduate program in the Department of Ethnic Studies (comprised of Asian American Studies, Chicano and Latino Studies, and Native American Studies) and the Department of African American Studies. The affiliated faculty is composed of faculty from other departments on campus whose expertise and research interests address the concerns of comparative ethnic studies and who have expressed a special interest in working with graduate students in ethnic studies. Both core and affiliated faculty may teach courses and sit on the examination and dissertation committees of students in the Ethnic Studies Graduate Group.

The Ethnic Studies Graduate Group offers a Ph.D. in Ethnic Studies.

Students may obtain information regarding the requirements and curriculum from the student affairs officer of the Ethnic Studies Graduate Group.

Graduate Courses

200. Critical Terms and Issues in Comparative Ethnic Studies. (4) Four hours of seminar per week. Formerly 200A. Introduction to the field examining critical practices and salient terms and issues in the study of contemporary cultural and social formations. The focus is interdisciplinary. (F) Staff

201. History and Narrativity: Contemporary Theories and Methods. (4) Four hours of seminar per week. Formerly 200B. The course examines critical theories and methods in the production of historical narratives, social myths, and ideologies dealing with racialization and ethnicity. Special attention is given to employment strategies, tropes, and allegorical forms in the construction of historical events and narratives. (SP) Staff

202. Cultural Texts: Contemporary Theories and Methods. (4) Three hours of seminar per week. The course examines critical theories and methods in the production of cultural knowledge in the humanities. Special attention is given to transdisciplinary articulation with theories and methods in the social sciences. (F) Staff

203. Social Structures: Contemporary Theories and Methods. (4) Three hours of seminar per week. The course examines critical theories and methods in the production of knowledge relevant to social, political, economic, and institutional structures. Special attention is given to transdisciplinary articulation with theories and methods in the humanities. (F) Staff

230. Series in Transdisciplinary Comparative Theories and Methods. (4) Four hours of seminar per week. Research seminar focus is on critical history and practices across disciplines. (F) Staff

240. Series in Comparative Transnational Theories and Methods. (4) Four hours of seminar per week. Research seminar focus is on critical theories and practices in transnational comparative frameworks. (F,SP)

250. Research Seminar: Selected Issues and Topics. (4) Course may be repeated for credit. Four hours of seminar per week. Prerequisites: 200 or consent of instructor. A seminar course designed to involve ethnic studies students directly in the research process. Emphasis on examination and analysis of primary sources, methodology, and the development of theoretical constructs. A major research paper is required. (F,SP)

296. Directed Dissertation Research. (4-12) Course may be repeated for credit. Individual instruction. Must be taken on a satisfactory/unsatisfactory basis. For doctoral students directly working on the dissertation. (F,SP)

299. Directed Reading. (2-4) Course may be repeated for credit as topic varies. Individual instruction. Prerequisites: Consent of instructor. A term paper is required. (F,SP) Staff

601. Individual Study for Master’s Students. (4) Course may be repeated once for credit. Individual instruction. Must be taken on a satisfactory/unsatisfactory basis. Individual study, in consultation with Group faculty, to prepare students for master’s examinations. (F,SP)

602. Individual Study for Doctoral Students. (2-8) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 200A-200B. Individual study, in consultation with Group faculty, to prepare students for the doctoral oral examinations. A student will be permitted to accumulate a maximum of 16 units in 601 and 602, respectively, toward examination preparation. Units earned in these courses may not be used to meet academic residence or unit requirements for the master’s or doctoral degree. (F,SP)

Professional Courses

301. Professional Training: Teaching. (4) Course may be repeated for credit. Two hours of lecture and two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointing as a Teaching Assistant. To develop teaching skills, especially in undergraduate courses. (F,SP) Staff

Film

(College of Letters and Science)

Film Studies Program: 7408 Dwinelle Hall, (510) 642-1415
Filmstudies.berkeley.edu
Director: Kaja Silverman, Ph.D.

Professors
Anton Kaes, Ph.D. (German)
†Kaja Silverman, Ph.D. (Rhetoric)
†Linda Williams, Ph.D. (Rhetoric)
Seymour Chatman (Rhetoric Emeritus), Ph.D.
Carol Clover (Rhetoric, Scandinavian Emerita), Ph.D.

Associate Professors
Gabriel Moses, Ph.D. (Italian)
Anne Nesbet, Ph.D. (Slavic Languages and Literatures)
Greg Nemeyer, Ph.D. (Art Practice)
Mark Sandberg, Ph.D. (Scandinavian Languages and Literatures)

Adjunct Professor
Mark Berger, B.A.
Russell Merritt, Ph.D.

Assistant Adjunct Professor
Alexander Cohen, Ph.D.

Lecturers
Ulyssse Doutjol, Licence de Pedagogie (French)
Marilyn Fabe, Ph.D.
Mira Koppell, M.F.A.

Group Major in Film

The group major in film is designed to place the history and theory of film in the larger context of humanistic studies. To declare the film major: Film 25A or 25B must be completed. In addition, the student must be progressing in the chosen language.

Lower Division

History of Film: Two courses, one on film from its beginnings, covering the silent period and the conversion to sound (to 1930) [Film 25A], and the other on the classical period through the New Wave and the emergence of new ethnic and national cinemas (1930-1971) [Film 25B].

Documentary Film: Film 28A.
Avant-Garde Film: Film 28B.

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Film majors have two options for completing their language requirement:

A. Students may complete the third semester of a college-level language course in a single language (e.g., French 3), or

B. Students may choose to complete the second semester of a college-level language course in two different languages (e.g., German 2 and Swahili 2).

Language courses that are strictly conversational are not acceptable. Students may enroll in the courses being used to satisfy the film language requirement only if they have passed the second semester at Berkeley. Students should be aware that if they are also using the course to satisfy the L&S foreign language requirement, it must be taken on a letter-graded basis. English language courses are not acceptable. Students who are native speakers of a language other than English may demonstrate their language competency by satisfactorily passing a language proficiency exam administered by a language department at Berkeley, or by taking an advanced course in the language (such as an upper division course which is taught in the language). Students are expected to demonstrate both verbal and written proficiency.

Upper Division (30 units of upper division courses)

Required Courses: See the major “Announcement of Courses” for current offers that satisfy these requirements and for specific topics being taught.

Film Theory: One course on the history of film theory (e.g., Film 100).

Genre: One course on film genre (e.g., Film 108).

Film Electives: Approximately 18 units required to complete the major requirements of 30 upper division units. Please check with the program office for approval to take the following.

Honors Program. To be eligible for admission to the honors program in Film, a student must have attained senior standing with a GPA of 3.3 or higher on all University work and a 3.5 GPA or higher on all University work and a 3.5 GPA or higher in courses in the major. The levels of honors are as follows: Honors, High Honors, and Highest Honors. Students in the honors program are to take Film H195 for a letter grade to complete a major honors thesis. Although the production of a film can be part of the preparation of the thesis and the film submitted as a documentation or example, it is expected that the thesis will be a substantial piece of writing on film criticism or film history.

Graduate Program

Graduate study in film leading to the Ph.D. is carried out under the film track in rhetoric (see the “Rhetoric” section of this catalog).

Designated Emphasis in Film Studies

Ph.D. students at Berkeley may add a Designated Emphasis in Film Studies to their major fields.

Applicants must be enrolled in a doctoral program at Berkeley and have completed the film theory seminar (Film Studies 200), offered each fall semester. Students admitted to the designated emphasis program must complete the following requirements. Students admitted to the minor track may enroll in film studies taken at Berkeley; Film Studies 200, Film Studies 210, Film Studies 240, or a graduate seminar cross-listed with Film Studies 240. Note: Independent study courses may not be used to fulfill this requirement. All courses in the Graduate Program in Film Studies must be an official member of the Ph.D. oral qualifying examination committee. The dissertation must contribute to the study of film.

Lower Division Courses

R1A. The Craft of Writing—Film Focus. (4) Three hours of lecture/discussion per week, plus individual conferences. Formerly Rhetoric R5A. Rhetorical approach to reading and writing argumentative discourse with a film focus. Close reading of selected texts; written themes developed from class discussion and written assignments. Satisfies the first half of the Reading and Composition requirement. (F) Staff

R1B. The Craft of Writing—Film Focus. (4) Three hours of lecture/discussion per week, plus individual conferences. Intensive argumentative writing stimulated through selected readings, films, and class discussion. Satisfies the second half of the Reading and Composition requirement. (SP) Staff

24. Freshman Seminars. (4) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman Seminar Program has been designed to provide students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from development to semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

25A. The History of Film. (4) Three hours of lecture and three to four hours of laboratory per week. From the beginnings through the conversion to sound. In addition to the development of the silent film, the course will conclude with an examination of the technology of sound conversion and examples of early sound experiments. (F,SP) Staff

25B. The History of Film. (4) Three hours of lecture and three to four hours of laboratory per week. Prerequisites: 25A or equivalent. The sound era through 1971. (F) Staff

26. Moving Image Media. (4) Two hours of lecture and two to four hours of laboratory per week. Prerequisites: 25A or 25B. The objective of this class is to provide a basic understanding of digital video and film production while emphasizing the techniques and languages of creative moving image media from traditional story genres to more contemporary experimental forms, and to move from pre-production, scriptwriting and storyboarding, through production, including image capture, lighting and sound recording, to post-production with nonlinear digital editing programs and post-production. (F,SP) Staff

28A. The Documentary Film. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: 25A or equivalent. A survey of experimental film, including examples by Vigo, Duvchamp, Leger, Bunuel, Clari, Deren, Brakhage, Kubelka, Snow, Gehr, Frampton, and Rainer. (F) Staff

28B. The Avant-Garde Film. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: 25A or equivalent. A survey of experimental film, including examples by Vigo, Duvchamp, Leger, Bunuel, Clari, Deren, Brakhage, Kubelka, Snow, Gehr, Frampton, and Rainer. (F) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Three hours of lecture per week per unit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from development to semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP)

50. Introduction to Film for Non-majors. (4) Three hours of lecture and one and one-half hours of discussion per week. An introduction to film art and film history for students who are interested in exploring the history and aesthetics of cinema but do not intend to major in film. The course traces the development of world cinema from the first films of the 1890s to the 1980s. Film clips from the cinema of German Expressionism, European, Asian, and Third World cinema. Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for eight weeks. Two hours of seminar per week per unit for five weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular interaction between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores per section. Staff

85. In the Mix: Anatomy of an Industry. (2) One hour of lecture and discussion per week and occasional film screenings. Prerequisites: Students who have taken Film 50, 25A, and 25B have priority. Anatomy of moving-image production (film, video, television) from the perspective of current participants. Hosted weekly discussions with writers, directors, producers, sound and image editors, agents, and actors who will analyze the diverse elements that go into the creation of content for entertainment. Occasional screenings. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor. Supervised research by lower division students. Staff

Upper Division Courses

100. History of Film Theory. (4) Three hours of lecture and three to four hours of laboratory per week. Prerequisites: 25A or equivalent. The study, from an historical perspective, of major theorists of film. (F,SP) Staff

105. Senior Seminar. (4) Three hours of seminar and two hours of laboratory per week. Prerequisites: Senior standing; completion of all lower division requirements and two out of three of the upper division requirements; GPA of 3.4 or better in the major. Intensive study of topics in film and moving-image media. (SP)

108. Special Topics in Film Genre. (4) Course may be repeated for credit. Three hours of lecture and two to three hours of laboratory per week. Prerequisites: Consent of instructor. Formerly C108. The study of films as categorized either by industry-identified genres (westerns, horror films, musicals, film noir, etc.) or broader interpretive modes (melodrama, realism, fantasy, etc.). (F,SP) Staff

128. Documentary. (4) Students will receive no credit for 128 after taking 28A. Three hours of lecture and one to three hours of screening per week. Prerequisites: 25A. A survey of the history, theory, and practice of the documentary film (including video). How have history, form, and ethics changed since the beginning of cinema? A range of practices and strategies will be covered: cinema verite, direct cinema, narrative documentary, autobiography, investigative documentary, and recent fictional styles to take the essence of the referential. The course moves between classic works of the genre...
as well as highly experimental works that critique traditional concepts. Throughout, the emphasis will be on the formal analysis of the films focusing on their narrative structures and the ways in which they make meaning. (F,SP) Staff

140. Special Topics in Film. (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. Prerequisites: Declared film major or consent of instructor. Selected topics in the study of film. (F,SP) Staff

151. Auteur Theory. (4) Course may be repeated for credit. Three hours of lecture and two to three hours of laboratory per week. Prerequisites: 254 or consent of instructor. The study of films from the perspective of directorial style, theme, or filmmaking career. (F,SP) Staff

160. National Cinema. (4) Course may be repeated for credit as topic varies. Three hours of lecture and the study of one hour of laboratory per week. Prerequisites: Declared film major or consent of instructor. This course will focus on the cinema of a particular nation or region. (F,SP) Staff

180A. Screenwriting. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Formerly 180A. The course explores the art and craft of writing a feature-length, narrative screenplay. Participants present three story ideas to the class and develop them into a detailed treatment, and write the first act of the script in professional screenplay form. The focus is on rewriting, with regular production of a feature-length screenplay to fellow writers. The emphasis is on story structure, character development, and screenplay form. (F,SP)

180B. Screenwriting. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor; 180A recommended. The course explores the art and craft of writing a feature-length narrative screenplay. Participants begin with a detailed outline of a narrative script and a portion of the script in proper form and develop it into a completed screenplay. There is a rewriting, with regular presentations of scenes to fellow writers. Participants also write short scripts and explore alternative story structure. The emphasis is on characterization, scene structure, visual story telling, dialogue, and creating a unified script. The class culminates with reading of completed scripts. (F,SP)

181. Game Design Methods. (4) Two hours of lecture and two to four hours of laboratory per week. Prerequisites: 254 or equivalent and consent of instructor. This advanced studio course is designed for students who have mastered the basics of digital media production and are interested in further investigating and exploring advanced productions in digital video production. Also listed as Practice of Art C171. (F,SP) Staff

C185. Digital Video: The Architecture of Time. (4) Nine hours of studio per week. Prerequisites: 254A or 254B with a grade of A+ or better and consent of instructor. This course introduces students to present multimedia tools and concepts used in digital video production. As digital technologies continue to expand our understanding of meaning and meaning-making, artists are using these tools to envision the impossible. Nonlinear and nondestructive editing methods used in digital video are defining new "architectures of time" for cinematic creativity and expression. (F,SP) Staff

C185. Digital Video: The Architecture of Time. (4) Nine hours of studio per week. Prerequisites: 254A or 254B with a grade of A+ or better and consent of instructor. This course introduces students to present multimedia tools and concepts used in digital video production. As digital technologies continue to expand our understanding of meaning and meaning-making, artists are using these tools to envision the impossible. Nonlinear and nondestructive editing methods used in digital video are defining new "architectures of time" for cinematic creativity and expression. (F,SP) Staff

186. Special Topics in Moving-Image Production. (4) Nine hours of studio per week. Prerequisites: 185A with a grade of A+ or better and consent of instructor. This course investigates special topics in and special technologies of moving-image production (e.g., experimental film, documentary film, digital special effects, etc.). This is a hands-on studio course designed for students who have mastered the basics of moving-image production and are ready to pursue more specialized film or video production. (F,SP) Staff

C187. Advanced Digital Video. (4) Nine hours of studio per week. Prerequisites: 100, 185 with a grade of A- or better and consent of instructor. The advanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production and are interested in further investigating critical, theoretical, and creative research topics in digital video production. Also listed as Practice of Art C174. (F,SP) Staff

H195. Film Honors Thesis. (4) Independent study with film faculty. Prerequisites: Senior standing with a grade of 2.39 or better and consent of instructor. This course offers an introduction to projects that form the basis for a course in the major. Students in the honors program are to take H195 for a letter grade to complete a senior honors thesis. Although the production of a film may be the focus of the project, the course is designed to provide students with the necessary skills and training to present at PFA the following spring semester. Students will solicit films and videos, preview them, and make a final selection as a group. Students will write short analyses of local film exhibitions and programs and will do projects related to PFA's ongoing exhibition program.

197D. Field Study at Film Quarterly. (2) Two hours of fieldwork and one hour of discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Declared film major with junior or senior standing (60- unit minimum), and consent of instructor. Experience "behind-the-scenes" at the Pacific Film Archive! Interns will learn about film curating through creating a program of works by UC Berkeley students to present at PFA the following spring semester. Students will solicit films and videos, preview them, and make a final selection as a group. Students will write short analyses of local film exhibitions and programs and will do projects related to PFA's ongoing exhibition program.

197F. Field Study at the Pacific Film Archive. (2) Three hours of field work and one hour of group meetings per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; film majors only. Students will learn about film bibliography and research materials. Interns will get a thorough orientation to the Pacific Film Archive library through introductory lectures and training sessions. Then, for three hours per week, they will help organize materials for inclusion in the clippings files. Interns will gain experience in library organization and film bibliography, as well as a broad knowledge of the kinds of film reviews and criticism found in a variety of sources. (F,SP) Staff

197A. Field Study at the Pacific Film Archive. (2) Three hours of field work and one hour of group meetings per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; film majors only. Students will learn about film bibliography and research materials. Interns will get a thorough orientation to the Pacific Film Archive library through introductory lectures and training sessions. Then, for three hours per week, they will help organize materials for inclusion in the clippings files. Interns will gain experience in library organization and film bibliography, as well as a broad knowledge of the kinds of film reviews and criticism found in a variety of sources. (F,SP) Staff

H197B. Field Study at Pacific Film Archive. (2) Three hours of field work and one hour of group meetings per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; film majors only. The supervised field program may include experience in a variety of areas such as research, cataloging, archiving, and video production related activities. The student will develop the field experience and its relationship to academic training with a member of the faculty on the Film Advisory Committee. Faculty supervision must be established individually and the times and academic requirements for acceptable completion of the course. Commencement to at least nine hours of fieldwork per week. (F,SP) Staff

197C. Film Curating Internship. (2) Two hours of fieldwork and one hour of discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Declared film major with junior or senior standing (60-unit minimum), and consent of instructor. Experience "behind-the-scenes" at the Pacific Film Archive! Interns will learn about film curating through creating a program of works by UC Berkeley students to present at PFA the following spring semester. Students will solicit films and videos, preview them, and make a final selection as a group. Students will write short analyses of local film exhibitions and programs and will do projects related to PFA's ongoing exhibition program.

200. Graduate Film Theory Seminar. (4) Three hours of seminar and one hour of discussion per week. Prerequisites: Graduate standing or consent of instructor. The theoretical and methodological issues raised by the recent practice of film history are the focus of this seminar. Intended primarily for first-year film studies graduate students and graduate students interested in continuing work on film history, the seminar provides both a theoretical overview of film history and an introduction to the practice of historically oriented film research. The first part of the course uses both overtly historiographic readings and film history examples to raise historical questions of technology, institution-formation, exhibition, cultural history, and spectatorship. (F,SP) Staff

Graduate Courses

200. Graduate Film Theory Seminar. (4) Three hours of seminar and one hour of discussion per week. Prerequisites: Graduate standing or consent of instructor. The theoretical and methodological issues raised by the recent practice of film history are the focus of this seminar. Intended primarily for first-year film studies graduate students and graduate students interested in continuing work on film history, the seminar provides both a theoretical overview of film history and an introduction to the practice of historically oriented film research. The first part of the course uses both overtly historiographic readings and film history examples to raise historical questions of technology, institution-formation, exhibition, cultural history, and spectatorship. (F,SP) Staff

201. Graduate Film Historiography. (4) Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. The theoretical and methodological issues raised by the recent practice of film history are the focus of this seminar. Intended primarily for first-year film studies graduate students and graduate students interested in continuing work on film history, the seminar provides both a theoretical overview of film history and an introduction to the practice of historically oriented film research. The first part of the course uses both overtly historiographic readings and film history examples to raise historical questions of technology, institution-formation, exhibition, cultural history, and spectatorship. (F,SP) Staff

203. Film Studies Proseminar. (2-4) Course may be repeated for credit. Three to four hours per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. A seminar introducing film studies graduate students to the field, the profession, and the faculty. The seminar functions as a way to allow new students to learn what is expected of them and for more advanced students to pass through the all-important last years of their training in an atmosphere of helpful camaraderie. Introduces students to the intellectual and physical
resources of the Berkeley campus, as well as the Bay Area. By the end of the semester students should gain an understanding of the expectations of their performance in graduate school, have identified the major goals on the way towards getting a Ph.D. and, depending on where they are in their studies, have begun to achieve those goals. (F,SP)

220. Film Curating Part 2. (3) Three hours of seminar and one to four hours of laboratory per week. Prerequisites: Graduate standing or consent of instructor. An introduction to the theory, history, and practice of film curating taught by Pacific Film Archive curators. What do curators do? How do they decide what to show? What is the role of film in a world film exhibition in the field of film and moving image study? Using the Pacific Film Archive and its programmers as a laboratory, students will go behind-the-scenes of the Archive’s curatorial, print traffic, publicity, and editorial operation per week.

221. Film Curating Part 2. (3) Three hours of laboratory per week. Prerequisites: 220. Students will develop and present a film series for presentation at the Pacific Film Archive. Possibly refining a series proposed in 220. PFA curators will have final approval of the series topic and the film/video selection. Students will write or adapt a short film, write notes, do outreach, and introduce programs. Guest speakers will include local press, writers, and artists. Local film and videomakers will trace history of a work from production through exhibition. (F,SP)

230. Graduate Production Seminar. (4) Two hours of lecture and three to five hours of laboratory per week. Prerequisites: Graduate standing and consent of instructor. Intensive study of the basic elements of film and digital video production and post-production. Graduate students will develop a working knowledge of film and video making through hands-on production experience that will enable them to film and edit their own productions. They will also acquire training to teach basic video, film, and video production classes. The uses of specific technologies and formats will be discussed in relation to aesthetic and theoretical questions. Training includes: pre-production scripting and storyboarding, production elements including image capture, and post-production strategies and aesthetics for nonlinear digital editing programs. The course will also introduce problems of how to format video/films for exhibition and approaches to distribution, exhibition, and funding. Classes will consist of technical lectures and hands-on workshops, creative exercises, seminar-style discussion and critique, film screenings, assigned readings, and writing assignments by speakers. (F,SP)

240. Graduate Topics in Film. (4) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Selected topics in the study of film. Staff

298. Special Study. (1-4) Course may be repeated for credit as topic varies. Individual conferences. Prerequisites: Consent of instructor. Graduate standing. Designed to allow students to do research in areas not covered by other courses. Requires regular discussion with the instructor and a final written report. (F,SP) Staff

Folklore
(College of Letters and Science)

Program Office: 110 Kroeber Hall, (510) 643-7934 folklore.berkeley.edu
Director: Professor Charles Briggs

Professors
Roneille Alexander, Ph.D. (Slavic)
(Anthropology)
Charles Briggs, Ph.D. (Anthropology)
John F. Lindo, Ph.D. (History, Slavic)
Constance Slater, Ph.D. (Spanish and Portuguese)
Bonnie Wade, Ph.D. (Music)

Associate Professor
Daniel F. Meila, Ph.D. (Rhetoric)

The Folklore Program
This program is designed to provide graduate students with a competent knowledge of both the materials of folklore and the various methods of studying these materials. The program is an interdisciplinary one in which faculty members from both the humanities and the social sciences participate. The scope of the courses is international. However, students may specialize in a particular genre, e.g., folktales, in a particular area, such as Russian folklore.

The Major
There is no undergraduate major in folklore.

Preparation for Graduate Study
The best preparation for the graduate program in folklore is a strong undergraduate record in one of the broad fields with which folklore is closely affiliated. Since it is a study of the humanist expression which is handed down by tradition rather than by writing, it is related to all departments that deal with literature, art, music. Since folklore also deals with the entire traditional culture of mankind as manifested in customs and beliefs, it has close affiliations with anthropology, design, history, linguistics, philosophy, psychology, and sociology. Consequently, a good undergraduate record in any of these disciplines is highly desirable though not necessarily required.

The Graduate Program
The requirements for the M.A. in folklore include 20 units of which at least 10 must be graduate level (200 number) in folklore, and an M.A. thesis based upon field work or some other research project. (No course credits are allowed for the thesis.) Students must take at least one course in two of the following three areas: folk narrative, folk or ethnic music, folk or primitive art; and one course in the area of their choice which is handed down by tradition rather than by writing. It is related to all departments that deal with literature, art, music. Since folklore also deals with the entire traditional culture of mankind as manifested in customs and beliefs, it has close affiliations with anthropology, design, history, linguistics, philosophy, psychology, and sociology. Consequently, a good undergraduate record in any of these disciplines is highly desirable though not necessarily required.

The Graduates Courses
C251. Theories of Narrative. (4) Three hours of seminar per week. Prerequisites: Open to undergraduate who have completed Anthropology 160. This course examines a broad range of theories that elucidate the formal, structural, and contextual properties of narratives in relation to gestures, the body, and emotion; imagination and fantasy; memory and the senses; space and time. It focuses on narratives at work, on the move, in action as they emerge from the matrix of the everyday preeminently, storytelling in conversation—as key to folk genres—the folktale, the legend, the fairy tale, the myth. Also listed as Anthropology C261. (F,SP) Staff

C262A. Theories of Traditionality and Modernity. (4) Course may be repeated for credit with different topic and different instructor. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reevaluate foundational works published between the 17th century and the present—along with philosophical texts with which they are in dialogue—in terms of how they are imbricated within and help produce traditionalities and modernities. Also listed as Anthropology C262A. (F) Briggs

C262B. Theories of Traditionality and Modernity. (4) Course may be repeated for credit with different topic and different instructor. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reevaluate foundational works published between the 17th century and the present—along with philosophical texts with which they are in dialogue—in terms of how they are imbricated within and help produce traditionalities and modernities. Also listed as Anthropology C262B. (SP) Briggs

298. Readings in Folklore. (3-6) Course may be repeated for credit. Individual conferences to be arranged.

299. Directed Research. (3-6) Course may be repeated for credit. Individual conferences to be arranged.

French (College of Letters and Science)

Department Office: 4125 Dwinelle Hall, (510) 642-2712 french.berkeley.edu
Chair: Michael Lucey, Ph.D.

Professors
Suzanne Guercio, Ph.D., Johns Hopkins University. 19th- and 20th-century literature, contemporary cultural criticism, literature and cinema studies.
Timothy Hampton, Ph.D. Princeton University. Renaissance literature
David F. Hult, Ph.D. Cornell University. Medieval literature, French literature
Michael Lucey, Ph.D. Princeton University. Modern literature and cultural studies; gender, sexuality
Ann A. Smock, Ph.D. Yale University. 20th-century literature
Leo Bersani, (Emeritus), Ph.D.
Joseph J. Duggan (Emeritus), Ph.D.
Basil Guy, (Emeritus), Ph.D.
Leonard W. Johnson (Emeritus), Ph.D.
Irving Putter, (Emeritus), Ph.D.
Walter E. Rex, (Emeritus), Ph.D.

Associate Professors
†Karl Britto, Ph.D. Yale University. Francophone literature
Richard Kern, Ph.D. Cornell University. 19th- and 20th-century literature
Susan Mastian, Ph.D. Johns Hopkins University. 17th- and 18th-century literature
Marie-Paule Pagé, Ph.D. University of Pennsylvania. 17th-century literature and culture
Debarati Sanyal, Ph.D. Princeton University. 19th- and 20th-century literature, intellectual history, literature and cultural studies
Soraya Tiabti, Ph.D. Emory University. Francophone literature, French intellectual history
†Bertrand Augis, (Emeritus), Ph.D.

Assistant Professors
Deborah Blocker, Doctorat, Université de la Sorbonne Nouvelle—Paris III. 17th and 18th-century literature; social history of literary practices
†Muriel S. McLaughlin, Ph.D. University of Cambridge. French and Romance linguistics; translation studies

Senior Lectures
†Gérard Jian (Emeritus), M.A.

†Recipient of Distinguished Teaching Award
*Prefix=language course for business majors
†Prefix=cross-listed course
H Prefix=honor’s course
R Prefix=course satisfies R&C requirement
AC Prefix=satisfies course satisfies American Cultures requirement
*Prefix=Student of the Graduate School of
Graduate Study

The graduate programs in the Department of French are structured in the traditional, historically based divisions of French literature and culture with a wide array of ancillary fields and topics—from psychoanalysis, linguistics, and philosophy to the study of formal law, historiography, visual arts and film, music, popular culture, francophone studies, and politics.

Both the Ph.D. Program in French literature and the Ph.D. Program in Romance languages and literatures enable students to undertake original research, to prepare scholarly and critical writing in the field, and to prepare for teaching careers at the college and university level.

The Ph.D. Program in French Literature. The program in French literature is divided into two phases, the M.A. (the first two years of graduate study) and the Ph.D. (thereafter). For the master's degree, students take a minimum of eight courses including French 270. The remaining courses are chosen in consultation with the graduate adviser to ensure historical and geographic coverage for the students’ master’s exam. (Note: The department does not admit students who intend to pursue only the M.A. degree.)

Upon completion of the M.A. phase, students must: (1) take a minimum of six more courses, for a total of 14; (2) fulfill the foreign language requirement either through examination or through the successful completion of two upper division or graduate courses in a foreign language (other than French) within the department. Preparations on the students’ courses of study; (3) pass a written and oral qualifying examination in three areas of study based on the students’ interests and reading lists developed in consultation with faculty; and (4) complete a dissertation.

Ph.D. in Romance Languages and Literatures (Emphasis in French). Students admitted for this degree have a choice of three plans of study.

Plan I includes a detailed knowledge of French literature and philology, and a second Romance language as a collateral field, and knowledge of a prescribed list of modern languages and literature.

Plan II requires a detailed knowledge of French literature and philology, and the command of one broad integrated field (period, movement, or genre) in two other Romance literatures, to be chosen by the student and the graduate adviser in accordance with the student’s special interest in French literature.

Plan III requires an in-depth knowledge of the structure and history (internal and external) of French, and two collateral fields in Spanish and Italian. The candidates take such courses as they and the adviser deem necessary in light of the approved plan and program. Language requirement: Latin, French, Italian, and Spanish. Knowledge of German is recommended.

Designated Emphasis. Graduate students may also participate in a Designated Emphasis (DE) as part of their graduate work. DEs in which French graduate students have enrolled include Critical Theory; Film Studies; Gender, Women, and Sexuality. Students obtaining a DE must fulfill additional course and other requirements. Students interested in completing a DE as part of their graduate study in French or in Romance Languages and Literatures (French emphasis) should consult the French Graduate Assistant early in their graduate career.

For more detailed information concerning these programs, students should consult the department.

Lower Division Courses

1. Elementary French. (5) Five hours of lecture and one hour of laboratory per week. Introduction to speaking, listening, reading, and writing in French. (F,SP)

2. Elementary French. (5) Five hours of lecture and one hour of laboratory per week. Prerequisites: 1 or equivalent. Introduction to speaking, listening, reading, and writing in French. Continuation of French 1. (F,SP)

3. Intermediate French. (5) Five hours of lecture per week. Prerequisites: 2 or equivalent. Bilingual French literature is divided into two phases, the M.A. (the first two years of graduate study) and the Ph.D. (thereafter). For the master's degree, students take a minimum of eight courses including French 270. The remaining courses are chosen in consultation with the graduate adviser to ensure historical and geographic coverage for the students’ master’s exam. (Note: The department does not admit students who intend to pursue only the M.A. degree.)

Upon completion of the M.A. phase, students must: (1) take a minimum of six more courses, for a total of 14; (2) fulfill the foreign language requirement either through examination or through the successful completion of two upper division or graduate courses in a foreign language (other than French) within the department. Preparations on the students’ courses of study; (3) pass a written and oral qualifying examination in three areas of study based on the students’ interests and reading lists developed in consultation with faculty; and (4) complete a dissertation.

2. French for Graduate Students, Advanced. Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Preparation for graduate reading examinations in field of English and in all other disciplines. (F)

3. French Composition in Connection with the Study of French. (5) Five hours of lecture per week. Prerequisites: 2 or equivalent. Development of students' reading and writing skills through a series of assignments that provide them with the opportunity to form their observations made in class discussions into coherent argumentative essays. Emphasis will be placed on the refinement of effective sentence, paragraph, and thesis formation, keeping in mind the notion of writing as a process. Other goals in this course are to familiarize students with French literature and the specific questions that are relevant to this field. In addition, students will be introduced to different methods of literary and linguistic analysis in their nonliterary readings. (F,SP) Staff

4. Advanced Intermediate French. (5) Five hours of lecture per week. Prerequisites: 3 or equivalent. Advanced training in listening, reading, writing, and speaking French. Review and refinement of grammar. (F,SP)

13. Intermediate Conversation. (2) Three hours of lecture per week. Prerequisites: 2 or consent of Director of Lower Division. Intermediate French conversation. May not be repeated for credit. (F,SP)

14. Advanced Conversation. (2) Three hours of lecture per week. Prerequisites: 3 or 13 or equivalent. Advanced French conversation. This course may not be repeated for credit. (F,SP)

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley seminars are offered in all campus departments, and topics
vary from department to department and semester to semester. Enrollment limited to freshmen. (F,SP)

35. Practical Phonetics and Listening Comprehension. (3) Three hours of lecture per week. Prerequisites: 3. This multimedia course concentrates on pronunciation, listening comprehension skills and provides a new understanding of the French language. The course web site includes a wide variety of material—text, audio, or video, authentic or specifically recorded—an audio visual sound chart, and a multimedia reference section. International phonetic alphabet and theoretical concepts are taught as necessary. Strongly recommended before study, work, or travel in French-speaking countries, particularly for those majoring in a foreign language. Oral and written comprehensions, written compositions (including correspondences), translations, training in oral expression. Conducted entirely in French. (F,SP)

137. French for Economics, Politics, and Business. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Introduction to the French vocabulary and syntax specific to economics, politics, and business. Oral and written comprehension, written compositions (including correspondences), translations, training in oral expression. Conducted entirely in French. (F,SP)

138. French for Future Teachers of the Language. (4) Three hours of lecture per week. Prerequisites: 35 and 102, or consent of instructor. Introduction to applied linguistics, for students planning to use their French in language teaching or related careers. In this course we will begin with a general account of the French language—its phonology, morphology, and syntax—and we will subsequently consider specific issues in the learning and teaching of French. We will also examine a variety of commonly used foreign language teaching methods. Students should have a working knowledge of both oral and written French. (F,SP) Kern

140B-140D. French Literature in English Translation. (4;4) Three hours of lecture per week. Major texts of French literature in English translation. Prerequisites: 102 or 103, or consent of instructor. Reading assignments in English for non-majors; writing assignments and French readings in French for French majors and minors. Class discussions in English. Topics vary from year to year. (F,SP) Staff

145. History of the French Language. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Formerly 132. Mainly devoted to "external" history of French, tracing spread of Latin to what is now France, its break-up into different languages and dialects, emergence of Parisian French as standard. Influence of other languages on French vocabulary. Study of brief texts from different periods to illustrate evolution of pronunciation and grammar. (F,SP)

146A. Introduction to French Linguistics. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Formerly 176A-176B. An introduction to the major branches of linguistic analysis (phonology, morphology—including word formation—syntax, and semantics) as applied to the French language. (F,SP) Kern

150A-150B. Women in French Literature. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. A study of the portrayal of women in French literature and of the contributions of women to French literature and thought. (F,SP)

151A-151B. Francophone Literature. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. A study of Francophone literature: traditional and French influences, structure, relationship between language and business. Oral and written examinations. (F,SP) Kern

161A-161B. A Year in French History. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. A study of a topic in French history from many points of view—

B prefix=language course for business majors
C prefix=course satisfies R&c requirement
H prefix=honors course
R prefix=course satisfies American Cultures requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

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162A-162B. Perspectives on History. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. This course will study both contemporary and subsequent reactions to historic events or figures. Topics vary from year to year. (F,SP)

170. French Films. (4) Four hours of lecture and two hours of studio per week. Prerequisites: 102 or equivalent. Beginning French cinema studies: the language of film. (F,SP)

171A-171B. A Concept of French Cultural History. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. An examination of certain large cultural concepts, such as “the Baroque” or “Romanticism,” in French cultural history. Topics vary from year to year. (F,SP)

172A. Psychoanalytic Theory and Literature. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. The relevance of psychoanalysis to literary texts. Concepts of fantasy, of the self, and of desire applied to texts by Racine, Balzac, Lautreamont, Rimbaud, and Proust. (F,SP)

174. Music and Literature. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Using various works from the arts and the human sciences, the course will investigate the relations between images and written texts. (F,SP)

175A. Literature and the Visual Arts. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. A consideration of the ways in which certain writers, as well as some composers, have sought to relate what might be thought of as two manifestations of language: song and poem, or musical score and literary text. (F,SP)

177A. History and Criticism of Film. (4) Four hours of lecture and two hours of studio per week. Prerequisites: 102 or equivalent. The development of French cinema. Discussions, oral and written research. Prerequisites to be based on viewing of films from the work of major French film directors. (F,SP)

178A-178B. Studies in French Film. (4;4) Three hours of lecture and one hour of laboratory per week. Prerequisites: 102 or equivalent; 170 or equivalent. Topics vary from year to year. (F,SP)

180B-180D. French Civilization. (4;4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Survey of French civilization: history, arts, and society, through the interpretation of literary texts. One course from 180A-180B-180C-180D is required for completion of the Option in French. (F,SP) 180A: The Middle Ages; 180B: The Ancient Regime; 180C: The 19th Century; 180D: The 20th Century. (F,SP)

183A-183B. Configurations of Crisis. (4;4) Course may be repeated once for credit with different topic. Course may be repeated for a maximum of 8 units. Three hours of lecture per week. Prerequisites: 102 or equivalent. A study of the pressures on artistic, political, and economic structures at moments of crisis in French history. Problems of continuity and discontinuity in European social history. (F,SP)

185. Literature and Colonialism. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Studies in the literature developed in France at the height of the colonial era. The themes of travel, exoticism, neocolonialism, the reaction of European countries to the discovery of Africa. (F,SP)

H195A-H195B. Honors Sequence. (2,2) Credit and grade to be awarded on completion of sequence. Prerequisites: Open to seniors majoring in French who meet the GPA requirements, with the consent of major adviser. Students will write an essay on a topic relating to French literature or culture under the supervision of a member of the faculty during two semesters of their senior year. (F,SP)

197. Field Studies. (1-4) Course may be repeated for credit. Two hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Supervised field programs involving experiences in schools and school-related activities. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

199. Supervised Independent Study and Research for Advanced Undergraduates. (2-4) Individual conference basis. Must be taken on a satisfactory/unsatisfactory basis. This course is designed to give all new graduate students a broad view of the department’s faculty, the courses they teach, and their fields of research. In addition, it will introduce students to some practical aspects of the graduate career, issues that pertain to specific fields of research, and questions currently being debated across the profession. (F,SP)

200. Proseminar. (1) One hour of seminar per week. Prerequisites: 102 or equivalent. Must be taken on a satisfactory/unsatisfactory basis. This course is designed to give all new graduate students a broad view of the department’s faculty, the courses they teach, and their fields of research. In addition, it will introduce students to some practical aspects of the graduate career, issues that pertain to specific fields of research, and questions currently being debated across the profession. (F,SP)

201. History of the French Language. (4) Course may be repeated for credit. Three hours of lecture per week. Formerly 201A-201B. A history of the French language from its Latin origins through the modern period. Emphasis on “external history” (development of the language in relation to other social and cultural phenomena) and “internal history” (phonology, morphology, syntax, orthography) introduced through textual readings from the various historical periods. Sociolinguistic emphasis, focusing on the emergence of the standard language and its relationship to other varieties of French. (F,SP)

C202. Linguistic History of the Romance Language. (4) Three hours of lecture per week. Prerequisites: Knowledge of at least two of the major Romance languages (French, Italian, and Spanish). Linguistic development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, combining historical grammar and external history. Also listed as Italian Studies C201 and Spanish C202. (F,SP)

204. Oral and Written Discourse in French. (4) Two hours of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Study of narrative structures and theories of rhetoric in the French language, for non-native speakers of French. Close analysis of texts and weekly writing assignments. (F,SP)

206. Special Topics in French Linguistics. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Topics may vary from semester to semester. (F,SP)

210A. Studies in Medieval Literature. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. Students should consult the department’s course description for current topics.

211A. Reading and Interpretation of Old French Texts. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. Current topics may be found in the department’s course description.

220A-220B. Studies in 16th-Century Literature. (4;4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. Must be taken on a satisfactory/unsatisfactory basis. See the department’s course description for current topics.

230A. Studies in 17th-Century Literature. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topics.

240A. Studies in 18th-Century Literature. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topics.

245A-245B. Early Modern Studies. (4;4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topic. (F,SP) Staff

250A-250B. Studies in 19th-Century Literature. (4;4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topic.

251. Francophone Literature. (4) Three hours of seminar per week. Focuses upon the relationship between oral and written cultures in Francophone Africa and/or the Caribbean. Drama and novels; the presence of oral tradition in written forms, narrative techniques borrowed from storytelling tradition, the definition of traditional metaphors and imagery; idealization of lost worlds; the conflict of traditional culture and modernism; the search for political identity and independence.

260A-260B. Studies in 20th-Century Literature. (4;4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topics.

265A-265B. Modern Studies. (4;4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topics.

270A-270B. Literary Criticism: Recent Work in French. (4;4) Three hours of seminar per week. A close investigation of a number of important critical works in the field of French, including an examination of their effects on other texts (particularly critical) with which they engage. Orients students to the varied field of French studies and develops the critical and research skills necessary for advanced work in the field.

275A. Problems of Literary Theory. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings vary from year to year. See the department’s course description for current topics.

282. French Literary and Social History. (4) Three hours of seminar per week. An analysis of patterns and trends in the literature and culture of France.

298. Special Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. See the department’s course description for current topics.

299. Individual Research. (4-12) Course may be repeated for credit. Individual conferences. Reserved for students engaged directly in writing the doctoral thesis. (F,SP)

601. Special Study for Graduate Students. (1-12) May not be used to satisfy units or residence requirements. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive exam in consultation with the field adviser. (F,SP)

602. Individual Study. (1-12) May not be used to satisfy units or residence requirements. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. See the department’s course description for current topics.

Professional Courses

301. Teaching French in College: First Year. (4) Three hours of lecture and attendance at demonstration class for five hours per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For graduate students teaching at college level. Required for all new T.A.s. Bi-weekly lectures on methodology, grading and testing, demonstration class with required attendance five times per week; language laboratory observations; supervised classroom practice. Additional seminars and discussion sections on method-
GENDER AND WOMEN’S STUDIES (COLLEGE OF LETTERS AND SCIENCE)

Department Office: 608 Barrows Hall #1070, (510) 643-2107, womenstudies.berkeley.edu

Chair: John Moalem, Ph.D., (510) 643-2107

Professors

Evelyn Nakano Glenn, Ph.D. Harvard University. Women of color in the U.S., women, work, and technology; comparative studies of race and gender. (Ethnic Studies, Asian American Studies)

Tanya Talaga, Ph.D., University of Alberta. First Nations women's literatures, oral history, and performance; First Nations feminist methodologies and praxis; First Nations literary theory; postcolonial theory; gender and women's studies.

Affiliated Faculty

Elizabeth Abel, Ph.D. (English)
Kathryn Abrami, Ph.D.
Alice M. Aggripino, Ph.D. (Mechanical Engineering, Executive Vice Chancellor for Academic Affairs)
Emile C. Bergmann, Ph.D. (Spanish and Portuguese)
Daniel Boyarin, Ph.D. (Near Eastern Studies, Rhetoric)
Karl A. Britto, Ph.D. (French, Comparative Literature, and Management)
Wendy Brown, Ph.D. (Political Science)
Judith Butler, Ph.D. (Rhetoric and Comparative Literature)
Kiren A. Chauhdry, Ph.D. (Political Science)
Pheng Cheah, Ph.D. (Comparative Literature, Ethnic Studies)
Catherine Ceniza Choy, Ph.D. (Ethnic Studies)
Lawrence M. Cohen, Ph.D. (Anthropology)
Margaret Conkey, Ph.D. (Anthropology)
Vasudha Dalmia, Ph.D. (South and Southeast Asian Studies)
Whitney Davis, Ph.D. (History of Art)
Lousa A. Fortuna, Ph.D. (Environmental Science, Policy, and Management; Society and Environment)
Deniz Gokturk, Ph.D. (German, Film Studies)
Mark Griffin, Ph.D.
Darcy Gondrong Grigsby, Ph.D. (History of Art)
Angela P. Harris, Ph.D. (Law)
Gillian Hart, Ph.D. (Geography)
Cori Hayden, Ph.D.
Carla Hesse, Ph.D. (History, Comparative Literature)
Fency Hintzen, Ph.D. (African American Studies)
Shereen Khaleel, Ph.D. (English)
Jennifer Johnson-Hanks, Ph.D. (Demography)
Rosemary Joyce, Ph.D. (Anthropology)
Elaine H. Kim, Ph.D. (Asian American Studies, Ethnic Studies)
Leslie V. Kuru, Ph.D. (Classics, Comparative Literature)
Thomas Laqueur, Ph.D. (History)
Marcia Lynn, Ph.D. (Education)
Michael Loyzay, Ph.D. (French Comparative Literature)
Kristin Luker, Ph.D. (Law, Sociology)
Saba Mahmood, Ph.D.
Francine R. Masiello, Ph.D. (Spanish and Portuguese, Comparative Literature)
Christina Mastach, Ph.D. (Psychology)
Mary Ann Mason, Ph.D. (Social Welfare)
Carolyn Merchant, Ph.D. (Comparative Science, Policy, and Management; Society and Environment)
Christopher Merridew, Ph.D. (Anthropology)
Aiwha Ong, Ph.D. (Anthropology)
Laura E. Perez, Ph.D. (Ethnic Studies, Spanish and Portuguese)
Carolyn Porter, Ph.D. (English)
Leigh Raiford, Ph.D. (African American Studies)
Raka Ray, Ph.D. (Sociology, South and Southeast Asian Studies)
Mirjam B. Sas, Ph.D. (Comparative Literature, East Asian Languages)
Nancy Schepet-Hughes, Ph.D. (Anthropology)
Susan M. Schwik, Ph.D. (English)
Kaja Silverman, Ph.D. (Rhetoric, Film Studies)
Katharine Snyder, Ph.D. (English)
Barbara Spackman, Ph.D. (Italian Studies, Comparative Literature)
Jennifer Sorey, Ph.D. (History)
Sylvia Tiong, Ph.D. (South and Southeast Asian Studies)
Sophie Volpp, Ph.D. (Comparative Literature)
Anne Wagner, Ph.D. (History of Art)
Laurie A. Wilke, Ph.D. (Anthropology)
Linda Williams, Ph.D. (English)
Sau-Ling Wong, Ph.D. (Ethnic Studies, Asian American Studies)

Lesbian, Gay, Bisexual, and Transgender Studies

Affiliated Faculty

Robert Andersen (Economics and Mathematics)
Emile Bergmann (Spanish and Portuguese)
Daniel Boyarin (Near Eastern Studies, Rhetoric)
Judith Butler (Rhetoric and Comparative Literature)
Lawrence Cohen (Anthropology)
Leah Keke (Classical Studies and Comparative Literature)
Michael Lucey (French and Comparative Literature)
Chris Nealon (English)

Department Overview

The Department of Gender and Women's Studies offers interdisciplinary perspectives on the formation of gender identities and their intersections with other relations of power, such as sexuality, race, class, nationality, religion, and age. Questions are addressed within the context of a transnational world and from perspectives as diverse as history, sociology, literary and cultural studies, postcolonial theory, science, new technology, and art. The undergraduate program is designed to introduce students to women's studies, focusing on gender as a category of analysis and on the workings of power in social and historical life. The department offers an introduction to feminist theory, as well as more advanced courses that seek to expand capacities for critical reflection and analysis and to engage students with varied approaches to feminist scholarship. The curriculum draws students into interdisciplinary analysis of specific gender practices in areas such as feminism in a transnational political representation, feminist science studies, women and work, women and film, gender and health, and the politics of childhood.

The department offers an undergraduate major and minor. It also houses an undergraduate minor in lesbian, gay, bisexual, and transgender studies—a program whose courses overlap productively with feminist and gender studies. Faculty in the department collaborate with an extensive group of extended faculty through the Designated Emphasis in Women, Gender and Sexuality, which provides graduate students across campuses with a site for transdisciplinary learning and teaching. The department is now in the process of developing a Ph.D. Program in Transnational Studies of Women and Gender, which will involve faculty from a range of departments. The department fosters connections with scholars in feminist and sexuality studies throughout the campus by cross-listing courses, collaborating in research, and participating in the Gender Consortium, which links research and teaching units that focus on gender.

Major Program

Prerequisites: To declare the gender and women's studies major, students must have completed GWS 10 and 20 and have a minimum GPA of 2.0.

Upper Division Requirements: The requirements for the minor in gender and women's studies major consist of a minimum of eight upper division courses on gender and women's issues (30-32 units) distributed as follows:

Core courses (20 units): 101, Doing Feminist Research: 102, Transnational Feminisms; 103, Identities Across Difference; 104, Feminist Theory; 195, Senior Seminar.

Electives (10-12 units): Three electives, at least one in the Department of Gender and Women's Studies; the other two may be fulfilled by classes offered by other departments that are cross-listed in Courses on Gender and Women, published each semester by the Department of Gender and Women's Studies.

Honors Program. Students must have a 3.3 GPA for honors, a 3.5 for high honors, and a 3.7 for highest honors. In all cases, the senior thesis must be deemed excellent.

Minor Programs

Gender and Women's Studies. Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. To be admitted to the minor in gender and women's studies, students must complete GWS 10. Minors in gender and women's studies must complete five upper division courses as follows: any three of the core courses (GWS 10, 102, 103, 104), plus two electives in gender and women's studies. A minimum GPA of 2.0 is required for the minor program.

Lesbian, Gay, Bisexual, and Transgender (LGBT) Studies. This minor is organized around four core courses: an introductory overview of LGBT culture and history in the U.S.; a visual and literary studies course; a cross-cultural studies course; and a history of sexuality course. In addition to these core courses, students are required to take two electives, which are approved by the director and posted online. Teaching is largely done by about 12 ladder-rank faculty.

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Prerequisites for Non-majors and Minors

Students who are not majoring or minoring in gender and women’s studies but wish to take gender and women’s studies core courses (101, 102, 103, and 104) must take GWS 10, 20, or their equivalent beforehand.

Graduate Program—Designated Emphasis in Women, Gender, and Sexuality

Ph.D. students at Berkeley may add a Designated Emphasis in Women, Gender, and Sexuality (DEWS) to their major fields. Designed to enhance interdisciplinary graduate studies at Berkeley, the DEWS provides curricular and research resources and opportunities to students who are already admitted to graduate degree programs on campus.

The designated emphasis program was developed to accommodate some of the many students who conduct graduate-level research in related topics across numerous fields. Administered by the Department of Gender and Women’s Studies and the Graduate Group in Women, Gender, and Sexuality, the designated emphasis program provides its students with certification, as well as with a context for the interdisciplinary exchange of ideas and the development of research.

Applicants will be selected according to their academic qualifications, the appropriateness of their interests to the program’s teaching resources, and the enrollment capacity of its graduate seminars. To be admitted to the program, applicants must already be accepted into an existing Ph.D. program at Berkeley (master’s students and students at other institutions are not eligible). Graduate students should apply in their third semester for admission to the program in their fourth semester. Students must apply before completing their qualifying examinations.

Students admitted to the designated emphasis program will be enrolled in the required introductory seminar (GWS 200) offered each spring. Students must fulfill the following requirements before completion of the degree: the introductory seminar (GWS 200), an elective seminar (GWS 210), and a dissertation research seminar (GWS 220). A member of the Graduate Group in Women, Gender, and Sexuality must be on the qualifying examination committee; a topic on women, gender, and sexuality must be on the qualifying examination, and a member of the graduate group must be on the dissertation committee.

For more detailed information concerning this program, students should consult the department.

Further Information

For further information, see the online Schedule of Classes and the department’s course descriptions issued before the start of each semester. The departmental publication, Courses on Gender and Women, provides detailed, up-to-date information about courses offered by the Department of Gender and Women’s Studies. For further information about the department, events, and links to other sites of interest, go to womensstudies.berkeley.edu.

Gender and Women’s Studies

Lower Division Courses

R1B. Reading and Composition. (4) Three hours of lecture and one hour of discussion per week. Formerly Women’s Studies R1B. Training and instruction in expository writing in conjunction with reading literature. The readings and assignments will focus on themes and issues in gender and women’s studies. This course satisfies the second half of the Reading and Composition requirement. (SP) Staff

10. Introduction to Gender and Women’s Studies. (4) Course may be repeated for credit. Four hours of lecture per week. Formerly Women’s Studies 10. Introduction to the fundamental concepts in gender and women’s studies. Critical study of the formation of gender and its intersections with other relations of power, such as sexuality, racialization, class, religion, and age. Questions will be addressed within the context of a transnational world. Emphasis of the course will change depending on the instructor. (F,SP) Staff

14. Gender, Sexuality, and Race in Global Political Issues. (4) Course may be repeated for credit. Three hours of lecture per week. Formerly Women’s Studies 14. The production of gender, sexuality, and processes of racialization in contemporary global political issues. Topics and geographical foci may vary. Examples: the post-9/11 situation in the U.S. and U.S. wars in Afghanistan and Iraq; Hindu-Muslim conflict in India; the wars in the former Yugoslavia and Rwanda; the Israeli/Palestine situation; global right-wing movements; state and social movements in and beyond transnational “security” measures. (F,SP) Staff

C15. Geographies of Race and Gender. (4) Three hours of lecture and one hour of mandatory discussion per week. Formerly Women’s Studies C15. What can geography contribute to our understanding of gender and racialization? How does the globalization of a ‘globalizing world’? The course examines: (a) how supposedly “natural” differences are actually produced through everyday practices in particular spatial contexts; (b) historical and cultural geographies of race and gender in the U.S. in relation to those in other parts of the world, including South Africa; and (c) how these concepts and comparative historical geographies can help us think critically and constructively about questions of social change in the face of globalization. Also listed as African American Studies C15 and Geography C15.

20. Introduction to Feminist Theory. (4) Four hours of lecture/discussion per week. Formerly Women’s Studies 20. Why study theory? How, and from where, does the desire to theorize gender emerge? What does theory do? What forms does theory take? What is the relationship between theory and social movements? This course will introduce students to one of the most exciting and dynamic areas of contemporary theory. (F,SP) Staff

R20W. Writing Intensive Workshop—Feminist Theory. (5) Three hours of seminar and two hours of discussion per week. Prerequisites: English 1A or equivalent. Formerly Women Studies R20W. This course is only open to students who have not completed the second half of the Reading and Composition requirement. Formerly Women’s Studies 20W. A multi-disciplinary course designed to provide students with an opportunity to work with faculty investigating the topic of gender and popular culture. (F,SP) Staff

50AC. Gender in American Culture. (3) Course may be repeated for credit. Three hours of lecture per week. Formerly Women’s Studies 50. A multi-disciplinary course designed to provide students with an opportunity to work with faculty investigating the topic of gender and popular culture. This course satisfies the American Cultures requirement. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Formerly Women’s Studies 84. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

98. Directed Group Study for Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted to students who have completed the introductory and “Cultural Contexts” of this section of the catalog. Must be taken on a
pass/failed pass basis. Formerly Women’s Studies 98. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP) Staff

98. Supervised Independent Study and Research (1-9). Course may be repeated for credit. Three to twelve hours of tutorial or fieldwork per week. Must be taken on a pass/failed pass basis. Prerequisites: Freshmen or sophomores only. Formerly Women’s Studies 99. Individual research by lower division students only. (F,SP) Staff

Upper Division Courses

100AC. Women in American Culture. (3) Three hours of lecture per week. Formerly Women’s Studies 100AC. This course is designed to provide students with an opportunity to work with faculty investigating the interdisciplinary nature of American culture. This course satisfies the American Cultures requirement. (F,SP) Staff

101. Doing Feminist Research. (4) Three hours of lecture/discussion per week. Prerequisites: 10 and 20. Formerly Women’s Studies 101. In this course, students will learn to do feminist research using techniques from the arts, humanities, social sciences, and sciences. The teaching of interdisciplinary research skills will focus on practices of gender in a particular domain such as labor, science, aesthetics, film, religion, and sports. Topics will vary depending on the instructor. (F,SP) Staff

102. Transnational Feminism. (4) Four hours of lecture/discussion per week. Formerly Women’s Studies 102. An overview of transnational feminist theories and practices, which address the workings of power that shape our world, and women’s practices of resistance within and beyond the U.S. The course engages with genealogies of transnational feminist theories, including analyses of women, gender, sexuality, “race,” religion, politics, nation, postcoloniality, international relations; post-development; globalization; area studies; and cultural studies. (F,SP) Staff

103. Identities Across Difference. (4) Four hours of lecture/discussion per week. Prerequisites: 10. Formerly Women’s Studies 103. The course studies identity as a product of articulation and investigation of self and other, rather than an inherited marking. Emphasis, for example, may be placed on the complexities of gender, race, and ethnicity and the experiences of women of color in the United States and in diverse parts of the world. (F) Staff

104. Feminist Theory. (3) Three hours of lecture/discussion per week. Prerequisites: 10 and 20. Formerly Women’s Studies 104. Feminist theory examines the barriers to and social structures that constrain modes of thought. Feminist theory engages with many currents of thought such as liberalism, Marxism, psychoanalysis, postcolonial theory, and cultural studies, and postmodernism. In this course, students will gain a working knowledge of the range and uses of feminist theory. (F,SP) Staff

111. Special Topics. (1-4) Course may be repeated for credit as topic varies. One to three hours of lecture/discussion per week. Formerly Women’s Studies 111. These courses will provide students with the opportunity to work closely with Gender and Women’s Studies faculty, investigating a topic of mutual interest in great depth. Emphasis in on student discussion and participation. Offerings of this course will vary from semester to semester. Number of units will vary depending on specific course, format, and requirements. (F,SP) Staff

120. The History of American Women. (4) Three hours of lecture per week. Formerly Women’s Studies 120. This course will survey the history of women in the United States from approximately 1890 to the present, a century of dramatic and fundamental change in the meaning of gender difference. We will examine such topics as work, the family, sexuality, and politics. We will be attentive to variations in the structure and experience of gender based on race, ethnicity, and class.

125. Women and Film. (4) Three hours of lecture and two hours of screening per week. Prerequisites: 10 and 20. Formerly Women’s Studies 125. This course explores the role of women both in front of and behind the camera. It examines the socially constructed nature of gender representations in film and analyzes the position of women in relation to the representation of them in films. Emphasis is on feminist approaches that challenge and expose the underlying working of patriarchy in cinema. (F,SP) Staff

126. Film, Feminism, and the Avant-Garde. (4) Three hours of lecture per week. Formerly Women’s Studies 126. This course will engage students while exploring the films of the avant-garde, focusing on Western conventions of representation during the modern period, we will investigate film, television, and video. How and when do “normative” and “queer” sexualities become visually defined? Also listed as Gender and Women’s Studies 126. (F,SP) Staff

130AC. Gender, Race, Nation, and Health. (4) Course may be repeated for credit. Three hours of lecture per week. Formerly 130. Examines the role of gender in health care disparities, in definitions and explanations of “race,” with particular focus on gender and national differences. (F,SP) Staff

130A. Gender, Race, Nation, and Health. (4) Course may be repeated for credit. Three hours of lecture per week. Formerly 130. Examines the role of gender in health care disparities, in definitions and explanations of “race,” with particular focus on gender and national differences. (F,SP) Staff

131. Gender and Science. (4) Course may be repeated for credit. Three hours of lecture per week. Formerly 131. Examines historical and contemporary scientific studies of gender, sexuality, class, nation, and race from late 18th-century racial and gender classifications through current systems of gender and sexuality. Examines the embedding of the scientific study of gender and sexuality and race in different political, economic, and social contexts. Considers different theoretical frameworks for the interpretation of women and minorities in science, as well as potential solutions. Introduces students to feminist science studies, and discusses technologies of production, reproduction, and distribution that draw on as well as remake gender, locality and globally. (F,SP) Staff

133AC. Women, Men, and Other Animals: Human Animality in American Cultures. (4) Three hours of lecture/discussion per week. Explores various ways that human groups and interests, particularly in the United States, have both attached and divorced themselves from other animals, with particular focus on gender, race, ability, and sexuality as the defining foils for human engagements with animality. This course satisfies the American Cultures requirement. (F,SP)

134. Gender and the Politics of Childhood. (3) Four hours of lecture per week. Formerly Women’s Studies 134. Examines gender and age as interrelated dimensions of social structure, meaning, identity, and embodiment. Cross-cultural gender politics of childhood—including, for example, the social regulation of reproduction; child-rearing, motherhood, fatherhood, care, and rights; the changing global political economy of childhood; the construction of “childlike” child; child laborers, soldiers, street children; consumption by and for children; growing up in schools, neighborhoods, and families. (F,SP) Staff

139. Women and Work. (4) Three hours of lecture/discussion per week. Formerly Women’s Studies 139. This course engages with contemporary debates about work, nature, meaning, and organization of women’s work. Students learn varied conceptual approaches with which to probe such issues as gender divisions of labor, the economic significance of caring and other forms of labor, the changing long duration of women and men, race and class differences in women’s work, transnational labor immigration, and worker resistance and organizing. (F,SP) Staff

140. Feminist Cultural Studies. (4) Three hours of lecture per week. Formerly Women’s Studies 140. This course introduces students to the interdisciplinary field of feminist cultural studies. Drawing upon contemporary theories of representational politics, the specific focus of the course will vary, but the emphasis will remain on the intersections between gender, race, nation, sexuality, and class in particular cultural and critical practices. (F,SP) Staff

141. Interrogating Global Economic “Development.” (4) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Formerly Women’s Studies 141. An introduction to women and gender in “development.” Addresses theories of “development” (modernization, demographic transition, dependency, world systems, post-development, postcolonial, and transnational feminists); productions and representations of “underdevelopment”; national and international “development” apparatuses; “development” practices about labor, population, resources, environment, postcoloniality, gender, and women’s resistance and alternatives. (F,SP) Staff

142. Women in the Muslim and Arab Worlds. (4) Three hours of lecture/discussion per week. Examines differences and similarities in women’s lives in the Muslim and Arab worlds, including diasporas in Europe and North America. Analysis of issues of gender in relation to “race,” ethnicity, nation, religion, and culture. (F,SP)

143. Women, Proverty, and Globalization. (4) Three hours of lecture/discussion per week. This course examines new patterns of global poverty as they relate to the feminization of poverty in a global and transnational context. It will give students the opportunity to enhance their critical knowledge of new forms of global- ization and their impact on the least-privileged group of women locally and globally. It also provides an opportunity for students to work with a local or global non-governmental or community organization with a focus on gender and poverty, and to engage in a systematic analysis of the strategies and practices of these organizations. (F,SP) Staff

144. Alternate Sexualities in a Transnational World. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. Formerly Women’s Studies 144. This course engages with contemporary narratives produced by and about lesbian, gay, bisexual, and transsexual postcolonial subjects through genres such as autobiography, fiction, academic writing, film, and visual culture, and political theory. This focus is geopolitically limited to no more than two countries to allow students to consider the conditions out of which the narrations are produced. Sites and subjects may vary from semester to semester. (F,SP)

C146. Cultural Representations of Sexualities: Queer Visual Culture. Four hours of lecture/discussion per week. Formerly Women’s Studies C146. This course examines modern visual cultures that construct ways of seeing diverse sexualities. Consid- ering Western conventions of representation during the modern period, we will investigate film, television, and video. How and when do “normative” and “queer” sexualities become visually defined? Also listed as Gender and Women’s Studies C146. (F,SP) Staff

C146A. Cultural Representations of Sexualities: Queer Literary Culture. Four hours of lecture/discussion per week. Formerly Women’s Studies C146A. This course examines modern literary cultures that construct ways of seeing diverse sexualities. Consid- ering Western conventions of representation during the modern period, we will investigate the social forces and institutions that would be necessary to sustain a newly imagined or re-imagined sexual identity across

*Professor of the Graduate School
Recipient of Distinguished Teaching Award
time. Also listed as Lesbian, Gay, Bisexual, and Transgender ST C146A. (F,SP) Staff

C153A. Images of African American Women in Literature: Slavery to the 20th Century. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Reading and composition requirement. Formerly Women's Studies C153A. Analysis of the cultural, literary, and social assumptions that contribute to the various images of African American women in African American women's writing. The course explores the literature of 19th-century African American women, an exploding field in American literary discourse. Also listed as African American Studies C153B. (SP)

155. Gender and Transnational Migration. (4) Three hours of lecture/discussion per week. Formerly Women's Studies 155. What economic, social, and cultural forces impel women to migrate and shape their experiences as immigrants? How does gender, together with class, affect the process of settlement, community building, and incorporation into labor markets? This course examines gender structures and relations as they are reconfigured and maintained through immigration. It emphasizes the agency of migrants, and the ways they cope with change and claim their rights as citizens. (F,SP) Staff

170. Selected Topics in Feminist Theory. (4) Course may be repeated for credit with consent of department. Three hours of lecture per week. Formerly Women's Studies 170. This course introduces graduate students to one topic, problem, or intellectual movement in feminist theory. Topic will vary with instructor. (F,SP) Staff

195. Gender and Women's Studies Senior Seminar. (4) Three hours of seminar per week. Prerequisites: 101. Formerly Women's Studies 195. This seminar is required for all seniors majoring in women's and women's studies. The goal of the course is for students to produce a research paper of 25-30 pages that reflects feminist methods, interpretations, or analysis. (F,SP) Staff

H195. Gender and Women's Studies Senior Honors Thesis. (4) Individual conferences. Prerequisites: 15 upper division units in Gender and Women's Studies; 3.3 GPA in all University work and 3.3 GPA in courses for the major. Formerly Women's Studies H195. Entails writing a bachelor's honors thesis pertaining to the student's major in gender and women's studies. Each student will work under the guidance of a faculty advisor who will read and grade the thesis. (F,SP) Staff

C196W. Special Field Research. (10.5) Course may be repeated for a maximum of 12 units. 240-300 hours of work per semester plus regular meetings with the faculty supervisor. Students work in selected internship programs and service learning projects under the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for the faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty advisor. Also listed as History of Art C197W. Undergraduate Interdisciplinary Studies C196W, History C196W, Political Economy of Industrial Soc C196W, Sociology C196W, Political Science C196W, and Media Studies C196W.

197. Internship. (2-4) Course may be repeated for credit. Individual conferences and 10 hours of internship required per week. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Formerly Women's Studies 197. Internship Program: Field work in an organization concerned with women's issues, plus individual conferences with faculty. Students must present a written scope of work to the supervising faculty members before enrolling. Credit earned depends on the amount of written work completed by a student. This work may be reviewed through diaries, historical reports, and creative work done for the organization. Faculty supervisor and student must agree on assignments. (F,SP) Staff

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Must be taken on a pass/not pass basis. Prerequisites: Gender and women's studies major. Formerly Women's Studies 198. Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP) Staff

199. Supervised Independent Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Must be taken on a pass/not pass basis. Prerequisites: Gender and women's studies major. Formerly Women's Studies 199. Reading and conference with the instructor in a field that does not coincide with that of any regular course and is specific enough to enable students to write an essay based upon their studies. (F,SP) Staff

Graduate Courses

200. Theory and Critical Research. (4) Two to three hours of lecture per week. Prerequisites: Consent of instructor, 104, or the equivalent. Formerly Women's Studies 200. This course will provide an opportunity for the examination of diverse feminist theories produced in different historical periods and cultures. The course will ground contemporary philosophical and theoretical developments in the study of gender to specific histories of class, race, ethnicity, nation, and sexuality. Students will be urged to draw upon their own disciplinary and interdisciplinary backgrounds and interests to produce multifaceted analyses of how feminist theory has acted to delimit the study of women in some instances as well as how it may be used critically and imaginatively to open the field in complex and dynamic ways. Graduate students research and write a substantial (25-50 page) paper for the course. They will also participate in organizing and leading class discussion on a rotating basis. (F,SP) Staff

210. Advanced Interdisciplinary Studies. (4) Three hours of lecture and one hour of seminar per week. Prerequisites: 104 or equivalent and consent of instructor. Formerly Women's Studies 210. A cross-disciplinary examination of specific problems in the study of gender, women, and sexuality. Topics will vary; for example, representations of motherhood, women in the public sphere, work and gender, globalization, race, and class. Students will be urged to draw upon their own disciplinary and interdisciplinary backgrounds and interests to produce multifaceted analyses of how feminist theory has acted to delimit the study of women in some instances as well as how it may be used critically and imaginatively to open the field in complex and dynamic ways. Graduate students research and write a substantial (25-50 page) paper for the course. They will also participate in organizing and leading class discussion on a rotating basis. (F,SP) Staff

237. Transnational Science, Technology, and New Media. (4) Course may be repeated once. Three hours of lecture per week. This is a core class of the new PhD in Transnational Gender and Women's Studies. It will expose students to critical thinking about knowledge, science, and technology, and it will explore intersections of gender and women's studies with science, technology, engineering, medicine, and new media around the world; including women in science, transnational feminist science and technology studies; technologies of reproduction, production and destruction; divisions of scientific and technical labor; embodiment and subjectivity; digital divides, digital empowerment, and the digital political. Projects include: projects of categorization; and the making and breaking of gendered bodies. It mixes secondary sources with primary sources, and among the primary sources, mixes scientific and technical documents with new media and the arts. (F,SP) Staff

238. Feminist Bio-Politics. (4) Three hours of seminar per week. This course is divided into three sections—Theorists and Methods, The Sciences of Life, and Bio- and Necro-politics—and within each section there are further thematic headings. The course serves both to introduce graduate students to science and technology studies and to introduce new works and directions in the field. We will also look at the impact of new technologies in production, distribution, communication, and circulation of cultural meanings and social identities by linking nationalism, immigration, diaspora, and globalization to the process of subject formation in a post-colonial context. (F,SP) Staff

239. Women and Work. (4) Three hours of lecture and one hour of seminar per week. Formerly Women's Studies 239. This course explores women's experiences of paid and unpaid labor in the household and the market. Historical, anthropological, economic, and sociological perspectives are brought to bear on such issues as historical changes in the content and location of women's work; wage inequities and occupational segregation; sexual harassment; individual resistance strategies and collective organizing; and race differences in women's work; state and social policy affecting work and family life. Graduate students will research and write a 25-50 page paper for the course. They will also participate in organizing and leading class discussions on a rotating basis. (F,SP) Staff

240. Feminist Cultural Studies. (4) Three hours of lecture and one hour of seminar per week. Formerly Women's Studies 240. This course introduces students to the interdisciplinary field of feminist cultural studies. Drawing upon contemporary feminist theoretical and representational politics, the specific focus of the course will vary, but the emphasis will remain on the intersections of gender, race, nation, sexuality, and class in particular cultural and critical practices. Graduate students research and write a substantial (25-50 page)
paper for the course. They also participate in organizing and leading class discussions on a rotating basis. (F,SP)

250. Queer Translation. (4) Three hours of seminar per week. This seminar aims for both a familiarization with the history and current state of a network of selected contemporary debates in queer theory: those concerning migration, race, globalization, and movements of theory. How do queer theories, queer theories-as-practice, queer practices travel? Furthermore, do critiques of the stability found in queer theory invite presumptions of mobility? We will interrogate the shadow of “mobility” in queer theory by considering queer tourism, gender identification, and gender migration, and the outer zones of citizenship. (F,SP)

291. Genes, Embryos, and Shifting Maps of Persons and Parenthood. (4) Two and one-half hours of lecture/discussion per week. Prerequisites: Graduate student standing. Formerly Women’s Studies 291B. Students will investigate a broad range of reproductive issues in which emerging technologies force people to articulate and map new meanings of personhood, parenthood, rights, and responsibilities. Sponsoring departments: Rhetoric, Gender and Women’s Studies, and the Program in Jurisprudence and Social Policy. Staff

299. Individual Study and Research. (1-9) Course may be repeated for credit. Regular meetings to be arranged with instructor. Prerequisites: Consent of instructor. 299B. Lower Division Courses

20AC. Alternative Sexual Identities and Communities in Contemporary American Society. (4) Students will receive no credit for 20AC after taking Undergraduate Interdisciplinary Studies 20AC. Three hours of lecture and one hour of discussion per week. An introduction to varied dimensions of alternative sexual identities in the contemporary United States, with a focus ranging from individuals to communities. This course will use historical, sociological, ethnographic, political-scientific, psychological, psychoanalytical, legal, medical, literary, and filmic materials to chart trends and movements from the turn of the century to the present. This course satisfies the American Cultures requirement. (F,SP) Staff

98. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Gender and women’s studies major. Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP) Staff

Upper Division Courses

145. Interpreting the Queer Past: Methods and Problems in the History of Sexuality. (4) Three hours of lectures/discussion per week. Formerly Undergraduate Interdisciplinary Studies C145. This course examines interpretive issues in studying the history of sexuality and the formation of sexual identities and communities. Concerning primary documents, secondary literature, and theoretical essays, we investigate specific historiographical concerns and raise questions about historical methodology and practice. (F,SP)

C146. Cultural Representations of Sexualities: Queer Visual Culture. (4) Three hours of lecture/discussion per week. Formerly Undergraduate Interdisciplinary Studies C146. This course examines modern visual cultures that construct ways of seeing diverse sexualities. Considering Western conventions of representation during the modern period, we will investigate film, television, and video. How and when do “normative” and “queer” sexualities become visually defined? Also listed as Gender and Women’s Studies C146, (F,SP) Staff

C147B. Sexuality, Culture, and Colonialism. (4) Three hours of lecture per week. Prerequisites: 3 or Sociology 3. An introduction to social theory and ethnographic methodology in the cross-cultural study of sexuality, particularly sexual orientation and gender identity. The course will stress the relationships between culture, international and local political economy, and the representation and experience of what we will provisionally call homosexual and transgendered desires or identities. Also listed as Anthropology C147B. (F,SP) Staff

C148. Ethnicity, Gender, and Sexuality. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Course examines ethnicities, sexual identification, and gender differentiation across multiple discourses and locations. Also listed as Ethnic Studies C126. (F,SP) Staff

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Gender and women’s studies major. Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP) Staff

Professional Courses

300. Teaching Transnational Gender Studies. (4) Three hours of seminar per week. This seminar prepares graduate students to teach effectively in the interdisciplinary field of transnational gender studies. Over the semester, graduate students will discuss pedagogy, perform teaching tasks, and build a teaching portfolio that will serve them as GSIs, on the job market, and into their own teaching careers. (F,SP)

Geography

(College of Letters and Science)

Department Office: 507 McCone Hall, (510) 642-3903 Student Services: 157 McCone Hall, (510) 642-3904 geography.berkeley.edu
Chair: Kurt Cuffey, Ph.D., (510) 643-1641
Manager: (510) 643-8226

Professors
Kurt M. Cuffey, Ph.D. University of Washington. Paleoclimatology, glacial landforms, river mechanics and the fluvial environment.
Louis P. Fortmann, Ph.D. Cornell University. Property, poverty, gender, community natural resource management.
Paul E. Grotz, Ph.D. University of California, Berkeley. Cultural landscapes of mining, ranching, and rural history, the United States.
Gillian Hart, Ph.D. Cornell University. Development theory, agrarian and regional studies, labor, gender.
B. Lynn Ingram, Ph.D. Stanford University. Paleoecology, marine geography, stratigraphy and geochronology, geocarcnhausology, paleoceanography.
Michael Johns, Ph.D. University of California, Berkeley. The culture of cities, cities of the Americas, Latin America.
G. Mathias Kondolf, Ph.D. Johns Hopkins University. Fluvial geomorphology applied to environmental river management and restoration.
Beata Manz, Ph.D. State University of New York, Buffalo. Latin America, human and political geography.
Harley Shaken, B.A. Wayne State University. Skill formation, training, work organization and global production.
Richard A. Walker, Ph.D. Johns Hopkins University. Economic and urban geography, California, United States.

Michael J. Watts, Ph.D. University of Michigan. Agriculture, rural development, Africa.
Orman E. Granger (Emeritus), Ph.D. Theodore M. Obarbder (Emeritus), Ph.D. Robert R. Reed (Emeritus), Hilgard O.R. Stemberg (Emeritus), Ph.D. David Stoddart (Emeritus). (Emeritus)

Associate Professors
John R. Burton, Ph.D. University of California, Berkeley. Economic restructuring and local states in post-Mao China, technology development, Asia.

Assistant Professors
Jon (Jake) Cosk, Ph.D. University of California, Berkeley. Cultural politics of nature and difference; science and technology studies.

Adjunct Faculties
Norman Miller, Ph.D. University of Wisconsin. Regional climate system modeling and climate variability, water resources.

Department Overview

The Department of Geography provides a broad-ranging perspective on humans as inhabitants of Earth, both as transformers of nature and as the creators of social spaces. Geography provides an environmental bridge between the natural and human sciences and an interdisciplinary link among the social sciences and humanities through its concern with space and spatial relations. As geographical theory and methodology have expanded their horizons over the past quarter century, three research foci have emerged to define geography at Berkeley:

(1) Earth System Science is concerned with understanding the interlocking subsystems of the natural environment (atmosphere, hydrosphere, biosphere, lithosphere, and cryosphere) in which we live and how they may change with time. Departmental research and teaching in this area aim to provide a complex picture of a dynamic and changing Earth, including landforms, the atmosphere, oceans, ice sheets, and ecosystems. Area strengths lie in climate change and variability, glacial and marine environments, terrestrial biogeochemistry, paleoclimate, Quaternary stratigraphy, atmospheric physics and chemistry, and paleoenvironmental reconstruction. Our scholarship blends a rigorous understanding and analysis of natural systems with curiosity about large-scale geographical phenomena.

(2) Development and Environment is concerned with the social origins of natural resource use and abuse and the relation of economic growth to environmental quality around the world. Research and teaching in Development Geography is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Gender and women’s studies major. Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP) Staff

Successive-course satisfies R&C requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
(3) Local and Global Relations is concerned with the intersection of global processes and locally situated systems of culture, politics, and economics at various spatial scales (urban, regional, national, international). Central concerns of Local and Global Relations are shifting spatial patterns of industry, cities and modern life. Research and teaching address global political economies, state politics, racial formations, social movements, labor organization, and consumer cultures.

Geography students are expected to have diverse interests and independent thought. We welcome students from a variety of backgrounds, including those with limited spatial contexts who wish to deepen their education. Students are encouraged to range freely through the curriculum and to follow their inspiration where it leads, working in tandem with faculty advisers. Graduate study: One or two or three faculty in equal measure (including faculty affiliates and members from other departments) and collaborate with faculty on research, writing, and teaching. We expect students to read extensively, develop their research, technical and teaching skills, and produce well-crafted papers, projects, and dissertations.

Extensive information on the department can be found at geography.berkeley.edu.

The Undergraduate Major

Lower Division. Majors take three lower division courses, one of which must be 1 or 40. The other two must be chosen from the following (one from each group): 10 or 20; C32 or 50AC or 51. (Transfer students should consult with the undergraduate adviser to avoid repeating lower division work.)

Upper Division. Majors take at least eight upper division courses. There are two configurations to choose from:

- 5-2-1-option: Five courses must be in one specialization and two from the other. One course from the Methodology group must also be completed. Everyone choosing the Earth System Science focus must take Geography 140A (Physical Landscapes of Global Systems—Form). Everyone choosing the Geography of Economy, Culture & Society focus must take Geography C110 (Economic Geography of the Industrial World) or Geography 130 (Natural Resources and Population).

- 4-2-2-option: Four courses must be in one specialization and two from the other. Two courses from the Methodology group must also be completed. Everyone choosing the Earth System Science focus must take Geography 140A (Physical Landscapes of Global Systems—Form). Everyone choosing the Geography of Economy, Culture & Society focus must take Geography C110 (Economic Geography of the Industrial World) or Geography 130 (Natural Resources and Population).

Focus Areas:


Earth System Science: Geography 109, 134, C136, C139, 140A/B, C141, 142, 143, 144, C145, 148, 171, 173B, or 175*.

Methodology: 180-188.

*Course designation varies according to instructor and content. For more information, consult the undergraduate adviser.

The Minor

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field thematically and administratively distinct from their major.

Required: A minimum of five upper division courses, all taken for a letter grade. Students must maintain an overall GPA of 2.0 for all courses taken for the minor. A minimum of three courses must be taken on the Berkeley campus. Students must take at least one course in the physical area (109, 134, C136, C139, 140A, 140B, C141, 142, 143, 144, C145, 148, 171, 173B, 175, 180) and one course in the human area from among the courses listed in the range of Geography 109-175. Students may select courses in the range of 175-188, but several of those courses have limited enrollment and require permission of the instructor. Geography 197, 198, and 199 cannot be used to satisfy a minor program requirement. Students should contact the student services assistant to obtain an update to the courses listed above.

Graduate Program

The graduate program is directed toward the Ph.D. Students are admitted to graduate studies only in the fall semester. The GRE general examination is required. For admissions information, contact Carol Page at (510) 642-3904 or consult the department's web page at geography.berkeley.edu/grad.

The Doctoral Program

All students take Geography 200A-200B in the first year and must take at least 8 units every semester (primarily in the form of appropriate graduate seminars) before taking the qualifying exam and advancing to candidacy.

By the end of the third year, students entering with a B.A. or B.S. only must hand in a paper that would be suitable, in length and in quality, for submission to an academic or scientific journal. The paper must be handed in and approved by the main adviser no later than a month before the qualifying exam.

Prior to taking the qualifying examination, all students must prepare a preliminary dissertation prospectus of between five and 10 pages for their exam committee.

The qualifying exam (the "oral") must be taken by the end of the third year, although it is recommended that students entering with a master's degree take it by the end of their second year. The exam is based on a discussion of three broad geographic fields built around bibliographies produced in consultation with the examining committee. Before starting dissertation research, each student must pass the oral exam. Three hours of lecture and one hour of discussion per week. How and why are geographical patterns of employment, production, and consumption unstable in the contemporary world? What are the consequences of NAFTA, an expanded European Community, and shifting patterns of oceanic flows? How is global restructuring culturally reworked locally and nationally?

24. Freshman Seminar. (1) Course may be repeated for credit. Sections 1-3 to be graded on a letter grade basis; Sections 4-10 to be graded on a pass/fail basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

30. The Ocean World. (4) Three hours of lecture and one hour of discussion per week. Introduction to the cultural and physical geography of the world's oceans. Ecology of ocean biota and environments. History and geography of ocean peoples, cultures, and resource use. Problems confronting ocean peoples and environments. New approaches to saving the oceans. (F,SP)

31. Justice, Nature, and the Geographies of Identity. (4) Three hours of lecture and one hour of discussion per week. The intersection of nature, identity, and politics peppers the pages of newspapers almost every day—from stories of toxic waste sites, crime, genetic engineering to indigenous struggles, and terrorist tendencies. In all these and many other cases, ideas of race, class, and gender intersect with ideas of nature and geography in often troubling ways. Our approach will be to understand these traditional ideas of environmental justice as well as to examine less traditional sites of environmental justice such as the laboratory, the war zone, the urban mall, and the courtroom. (F) Kosek

32. Introduction to Development. (4) Three hours of lecture and one hour of discussion per week. This course is designed as an introduction to comparative development. The course will be a general service course, as well as a prerequisite for the Division 100 series. It is assumed that students enrolled in 10 know little about life in the Third World countries and are unfamiliar with the relevant theory in political economy of development and underdevelopment. The course will be structured around three critical concepts: land, labor, and work. Also listed as Development Studies C10. (F) Watts

39. Freshman Seminar. Course may be repeated for credit as topic varies. Three hours of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/not passed basis. Prerequisites: Consent of instructor. Intensive reading and discussion seminar for freshman.

40. Introduction to Earth System Science. (4) Three hours of lecture and two hours of laboratory per week.
The goals of this introductory Earth system science course are to achieve a scientific understanding of important problems in global environmental change and to develop a perspective on a complex system using scientific methods. Earth system science is an interdisciplinary field that describes the cycling of energy and matter between the different spheres (atmosphere, hydrosphere, biosphere, cryosphere, and lithosphere) and the processes of the earth system. In addition to the themes of climate change, stratocumulus cloud feedback, and biodiversity loss, we will also discuss network theory and water and flood plain, fisheries, fishing policies, and science in public policy. (F,SP) Chang, Cuffey, Rhew

50AC. California. (4) Three hours of lecture and one hour of discussion per week. Formerly 150AC. California had been called “the great exception” and “America, only more so.” Yet few of us pay attention to its history, to its effects beyond our borders. California may be “a state of mind,” but it is also the most dynamic place in the most powerful country in the world and would be the fifth largest economy if it were a country. Its wealth has been built on mining, agriculture, industry, trade, and finance. Natural abundance and geographic advantage have played their parts, but the state’s greatest resource has been its wealth and diversity of people, who have made it a center of technological and cultural innovation from Hollywood to Silicon Valley. Yet California has a dark side of exploitation and racialization of modernity. This seminar focuses on immigration and control the poor. This course pursues classic themes in geography, such as regional difference, the transformation of nature, the space of cities, and the changing landscape. This course satisfies the American Cultures requirement. Walker

51. Political Economy of Development in East Asia. (3) Three hours of lecture and one hour of discussion per week. This course focuses on the political economy of development in East and Southeast Asia. Topics include the colonial histories and economic development in East Asia, the transition of the development state, transformation of former socialist economies, technology transfers and market transfers across the Pacific, new generations of women workers in the global economy, the politics of deforestation, and Asian financial crises and recovery. Cases used to illustrate the development issues in East Asia include China, South Korea, Singapore, Thailand, Vietnam, Malaysia, Indonesia, Vietnam, and Thailand. (SP) Hsing

C55. Introduction to Central Asia. (3) Three hours of lecture per week. Formerly 55. This course will introduce the student not only to ancient and modern Central Asia, but also to the role played by the region in the shaping of modernity and its effects on neighboring regions and regimes. The course will outline the history, languages, ethnicities, religions, and archaeology of the region and acquaint the student with the historical foundation of the Soviet Union, the Central Asian states, and the regional, social, and political, and economic dynamics of Central Asia. This course satisfies the American Cultures requirement. Hart

C82. Introduction to Oceans. (2) Two hours of lecture per week. The geology, physics, chemistry, and biology of the world oceans. The application of oceanographic sciences to human problems will be explored through special topics such as energy from the sun, the search for oil; from the sea, and climate change. Also listed as Integrative Biology C82 and Earth and Planetary Science C82. (F) Bishop, Powell, Rhew

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week for four weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter- grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small. Major courses are offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty and students. This seminar is focused on topics of interest that vary from semester to semester. Enroll. limited to 15 sophomores.

98. Directed Group Study. (1-4) Course may be repeated for credit. One to four hours of group study (or fieldwork) per week. Must be taken on a passed/not passed basis. Prerequisites: At discretion of instructor. Directed group study is focused on topics of interest that vary from semester to semester. Staff

109. Prehistoric Agriculture. (4) Three hours of lecture per week. Agricultural origins and dispersals in the light of recent biological and archaeological evidence. Byrne

117. Economic Geography of the Industrial World. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20 or prior courses in economic or regional development strongly suggested. Industrialization, urbanization, and economic growth in the 19th-20th centuries. Global manufacturing, trade, retailing, and trade. Prerequisites: Mathematics 53, 54; Economics 60A, 60B, or equivalent. Staff

C110. Economic Geography of the Industrial World. (4) Students will receive no credit for C110 if they take the corresponding Junior Seminars 110AC-110C. Three hours of lecture and one hour of discussion per week. Prerequisites: 20 or prior courses in economic or regional development strongly suggested. Industrialization, urbanization, and economic growth in the global North. Location patterns in manufacturing, retailing, trade, and finance. Geographic dynamics of technical change, employment, business organization, resource use, and divisions of labor, property, labor, and social conflict as geographic forces. Local, national, and continental rivalries in a global economy, and challenges to U.S. dominance. (F,SP) Walker

111. Local and Regional Transformation. (4) Three hours of lecture per week. The simultaneous transformation of localized activities, power relations, and identity. Theoretical issues pertaining to human agency and the simultaneous making of history and production of places. Detailed case studies from rural and urban settings, from the past and present, from North America, Europe, and the Third World.

C112. History of Development and Underdevel- opment. (4) Three hours of lecture and one hour of discussion per week. Lectures focus on a brief review of the development of world economic systems and the impact of these developments on less advanced countries. Course objective is to provide a background against which to understand and assess theoretical interpretations of development and underdevelopment. Also listed as Development Studies C110. (SP) Hart

123. Postcolonial Geographies. (4) Four hours of lecture per week. Postcolonial studies focus on how processes of colonialism/imperialism continue even after the formal breakup of empires. A central argument of this course is that critical human geography can make important contributions to understanding the interconnections between forces at play in different parts of the world. This course focuses on the concept of space, place, culture, power, and difference, its purpose is to provide a set of tools for grappling with the conditions in which we find ourselves, and for thinking about the possibilities for social change. (F) Hart

125. The American City. (4) Three hours of lecture and one hour of discussion per week. The American city, palimpsest of a nation. It all comes together in the form of metropolitan politics, culture, and geography. Cities as the economic engines of capitalism, centers of industry, finance, busi- ness, consumption, and innovation. Cities as political arenas, symbols of national identity, sites of cultural production, centers of arts and letters, urban centers, and symbols of national and international power. Staff

130. Natural Resources and Population. (4) Three hours of lecture per week. Are there enough energy, water, mineral, and land resources for the world’s population? The role of natural resources in the world economy, national development and human welfare if it were a country. Its wealth has been built on mining, agriculture, industry, trade, and finance. Natural abundance and geographic advantage have played their parts, but the state’s greatest resource has been its wealth and diversity of people, who have made it a center of technological and cultural innovation from Hollywood to Silicon Valley. Yet California has a dark side of exploitation and racialization of modernity. This seminar focuses on immigration and control the poor. This course pursues classic themes in geography, such as regional difference, the transformation of nature, the space of cities, and the changing landscape. This course satisfies the American Cultures requirement. Walker


C139. Atmospheric Physics and Dynamics. (3) Three hours of lecture/discussion per week. Prereq- uisites: Mathematics 53, 54; Physics 7A-7B-7C. This course examines the processes that determine the structure and circulation of the Earth’s atmosphere. The approach is deductive rather than descriptive: to figure out the properties and behavior of the Earth’s atmosphere based on the laws of physics and fluid dynamics. Topics will include: interaction between radiation and atmospheric composition; the role of large-scale atmospheric and oceanic circulation processes; and the governing equations for atmospheric motion, mass conserva- tion, and thermodynamic energy balance; geostrophic flow, quasigeostrophic motion, baroclinic instability and flow dynamics. This course satisfies the requirements as Earth and Planetary Science C181. Chiang, Fu

140A. Physical Landscapes: Process and Form. (4) Four and one-half hours of lecture per week. Prere- quisites: 1 or equivalent. Formerly 140. Understand the physical characteristics of the Earth’s surface, and the processes active on it, is essential for maintaining the long-term health of the environ- ment, and for appreciating the unique, defining quali- ties of geographic regions. In this course, we build an understanding of global change, and how human activities alter it. Also listed as Earth and Planetary Science C181. Chiang, Fu

140B. Physiography and Geomorphic- extremes. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 140A (formerly Geography 117). This course, we review the physical landscapes and surface processes in extreme environments: hot and arid regions, glacial and periglacial landscapes, and karst terrain. We develop a knowledge, understanding of tec- tons and temperate watersheds (gained from pre-
Requisite courses), we explore how unique combinations of geomorphic processes acting on tectonic and structural provinces have created the spectacular and diverse landscapes of the Americas. Regions to be explored include the Colorado Plateau, Sierra Nevada, North Cascades, Northern and Southern Rockies, Great Plains, Appalachian Highlands, and Mississippi Delta. Cuffy.

C141. Paleoclimatology. (4) Three hours of lecture and three hours of discussion per week. Earth’s climate changes have been substantial throughout geologic history, and these changes constitute fascinating natural experiments that reveal much about the Earth’s climate system and their capacity for change. In this course, we will review important methods for past climate reconstruction and also current knowledge of past climate changes through Earth’s history, with an emphasis on Quaternary. Methods to be explored include analyses of physical, geochemical, and paleontologic characteristics of marine sediments, coral reefs, coastal sediments, lake sediments, tree rings, and ice cores. Also listed as Earth and Planetary Science C141. Cuffy, Ingram.

C142. Climate Dynamics. (4) Three hours of lecture per week and one or two computer laboratory projects. This course examines how various components of the climate system—the atmosphere, ocean, land, and cryosphere—interact and determine climate. Covered topics: observations of the climate system; the earth’s energy balance; atmospheric radiation transfer; the surface energy balance; the hydrologic cycle and its circulation and its influence on the energy balance; the role of the ocean and the cryosphere. Additional topics, as time permits, will cover climate change, natural and anthropogenic; and computer modeling of climate. Chiang.

143. Global Change and Biogeochemistry. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Chemistry 1A-1B or equivalent. The field of biogeochemistry offers an interdisciplinary approach to modern global environmental issues, such as climate change, effects of pollution, ozone layer, oxygenation of the atmosphere, land use change, and marine ecosystem health. Earth is a complex system where the transformation and flow of chemicals and energy within and between biomes have ramifications for life on this planet. The overall theme of this course will be to explore the imprint of the biota (including humans) on the chemistry of the ocean, land, and atmosphere. This course will explore the biogeochemical cycles of terrestrial, freshwater, and marine biomes. In addition, the global cycles of environmentally important elements and gases will be explored. Watts.

144. Principles of Meteorology. (3) Three hours of lecture per week. Weather development in relation to different scales of atmospheric circulation including analysis and forecasting with examples from the Northern and Southern Hemispheres. Three hours of lecture and three hours of laboratory per week. Prerequisites: Upper division standing. The tectonics of the ocean floor, the geologic processes in the deep and shelf seas, and the climatic record contained in the sediments will be covered. Composition and formation of marine sediments, sea-level change, ocean circulation, paleo-environmental reconstruction using fossils, imprint of climatic zonation on marine sediments, marine stratigraphy, and ocean floor resources. Also listed as Earth and Planetary Science C146. Ingram.

C145. Geological Oceanography. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Upper division standing. The tectonics and morphology of the sea floor, the geologic processes in the deep and shelf seas, and the climatic record contained in the sediments will be covered. Composition and formation of marine sediments, sea-level change, ocean circulation, paleo-environmental reconstruction using fossils, imprint of climatic zonation on marine sediments, marine stratigraphy, and ocean floor resources. Also listed as Earth and Planetary Science C146. Ingram.

C146. Communicating Ocean Science. (4) Two and one-half hours of lecture, one hour of discussion, and two hours of fieldwork per week. Prerequisites: One course in physical, geology, or marine science required and interest in ocean science; junior, senior; consent of instructor required. For undergraduates interested in improving their ability to communicate their scientific knowledge to non-scientists or to publishers, this course is designed to teach ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge to non-scientists and learn to incorporate their presentations. Also listed as Earth and Planetary Science C100 and Integrative Biology C100. (SP) Ingram.

148. Biogeography. (4) Three hours of lecture per week. Prerequisites: I or lower division course in Biology or Earth Science. Changing distribution patterns and movements of plants and animals on a variety of spatial and temporal scales. The effects of “continental drift,” Pleistocene climatic change, agricultural origins and dispersals. The ecology of invasions and extinctions. Also listed as Earth and Planetary Science C102 and Integrative Biology C102. (SP) Groth.

C152. Multicultural Europe. (4) Three hours of lecture per week. Formerly Interdisciplinary Field Studies 145. In this course, we will trace some of the substantive changes and transformations taking place in contemporary Europe in the areas of culture, society, and politics. In particular, we will look at the effects of massive migration flows—due to globalization processes—on the national culture of the core countries and examine the ways in which particular national cultures react to the increasing multiculturization of Europe. The goal of the course is, first of all, to familiarize students with a variety of cultural, social, and political innovations that accompany the formation of multicultural societies. In particular, we will examine: (1) the construction of the traditional concepts of nationhood and citizenship, and (2) a study of the Europeanization of culture. Also listed as History C176, Interdisciplinary Studies Field Studies C145, and International and Area Studies C145.

153. What is in a Rim? Geography of Social and Economic Development in East Asia. (3) Three hours of lecture per week. This course focuses on development issues in East and Southeast Asia. Topics include the colonial legacy in Southeast Asia, the ups and downs of the “developmental state,” women and labor, and the environment. It also takes a critical view of the presentation and representation of development issues in East and Southeast Asia. Geographical terms, such as Pacific Rim and Greater China. Students are expected to participate and make thoughtful contributions to class discussions. This is a lecture course designed mainly for upper-level undergraduate students with backgrounds in East Asian studies or development studies. Hsing.

156. Political Economy and Historical Geography of Latin American Development. (4) Three hours of lecture per week. This course focuses on the problems of development and underdevelopment in Latin America by using comparative economic and geographical materials from select countries. A strong theoretical foundation will be used to focus on the historical development, relations between the city and the countryside, and the process of urbanization should offer special insights into the nature of Latin American development. Johns.

C157. Central American Peoples and Cultures. (4) Three hours of lecture per week. A comparative survey of the peoples and cultures of the seven countries of the Central American Isthmus from a historical and contemporary perspective. Also listed as Chicano Studies C161. Manz.

159AC. The Southern Border. (4) Four hours of lecture/discussion per week. The Southern Border—from California to Florida—is the longest physical divide between the First and Third Worlds. This course will examine the border as a distinct landscape where North-South relations take on a specific spatial and cultural dimension, and as a region which has been the testing ground for such issues as free trade, immigration, and ethnic politics. Also listed as Education C169B, Political Science C112B, and International and Area Studies Field Studies C145, and International and Area Studies C145.

160A. American Cultural Landscapes, 1900 to Present. (4) Three hours of lecture per week. This course examines the processes of urbanization should offer special insights into the nature of Latin American development. This course is designed to provide a vehicle for instructors to address a topic with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

161. The Geography of Economic Development in China. (4) Three hours of lecture and one hour of discussion per week. This course focuses on four issues in contemporary China: (1) the transformation of the socialist state, (2) the politics of resource struggle, (3) the interplay of gender and class in the transitional society, and (4) Chinese Diaspora and business networks in the context of globalization. Each of these issues will be examined with reference to theories of political economy, migration, urban growth, and peasant economy. Watts.

170. Special Topics in Geography. (3) Course may be repeated for credit with different topic. Three hours of lecture per week. This course is designed to provide a vehicle for instructors to address a topic with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

171. Topics in Physical Geography. (3) Course may be repeated for credit with different topic. Three hours of lecture per week. This course is designed to provide a vehicle for instructors to address a topic in physical geography with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

172. Topics in Social Geography. (4) Course may be repeated for credit with different topic. Four hours of lecture/discussion per week. This course is designed to provide a vehicle for instructors to address a topic in social geography with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

173A. Cross-listed Topics in Human Geography. (1-4) Course may be repeated for credit. One to four hours of lecture per week. This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to geography majors. Content and unit values vary from course to course. (F,SP)

173B. Cross-listed Topics in Physical Geography. (1-4) Course may be repeated for credit. One to four hours of lecture per week. This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to geography majors. Content and unit values vary from course to course. (F,SP)

175. Undergraduate Seminars. (4) Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit. Three
and natural environments lies at the heart of geo-
graphical inquiry and has gained urgency as the rate
and scale of human transformation of nature have
taken on new dimensions of cause and effect.
The physical side of environmental sci-
ence has received most of the emphasis in
university research, but the social basis of environ-
mental change must be introduced. Because stu-
dents in social theory have much to offer environ-
mental studies, while the latter has, in turn, exploded
in a new, complex perspective on what and how
the social sciences can contribute. In that
context, the planet's environment can be
understood using concepts from tectonics, geomor-
phology, and geography. Two four-day field trips
and preparatory readings for them will
illuminate the interrelations of tectonic, geologic
structure and lithology, drainage network develop-
ment, hydrography, soil production, hillslope trans-
port, fluvial transport, aeolian transport, and
glacial/periglacial processes. A seven project
will be required. Cuffey

246. Geomorphology of California. (4) Course may be
repeated for credit. Seminar. Two major field
trips of four days' duration, each with 12-hour days.
Prerequisites: Graduate study or knowledge of
earth and planetary science and consent of instructor.
Undergraduates need consent of instructor and 140A-
140B or 140B and Earth and Planetary Science 117.

C245. Seminar in Sociology of Forest and Wild-
lands Resources. (3) Three hours of lecture per week.
Prerequisites: Consent of instructor. Formerly 250.
Enrollment limited. Also listed as Environ Sci, Policy,
and Management C255. (F) Fortmann

251. Topics in Cultural Geography. (4) Course may be
repeated for credit. Two hours of seminar per week.
Research seminar on selected topics in cultural geography.
Groth, Walker

252. Topics in Economic Geography. (4) Course may be
repeated for credit. Three hours of seminar per week.
Research seminar on selected topics in economic geography.
Hsing, Shucken, Walker, Watts

253. Topics in Urban Geography. (4) Course may be
repeated for credit. Two hours of seminar and one
hour of consultation per week. Research seminar on
selected topics in urban geography.
Groth, Walker

255. Topics in Political Geography. (4) Course may be
repeated for credit. Two hours of seminar and one
hour of consultation per week. Research seminar on
selected topics in political geography.
Chiang

256. Topics in Biogeography. (4) Course may be
repeated for credit. Two hours of seminar and one
hour of consultation per week. Research seminar on
selected topics in biogeography.
Byrne

180. Field Methods for Physical Geography. (5)
Two hours of lecture per week and six weekend field
trips, or equivalent, and consent of
instructor. Field introduction to geomorphology, bio-
geochemistry, and California landscapes. Students
conduct field experiments and mapping exercises.
Results are analyzed and presented as a technical report.
Oral field reports are required for some trips.

181. Urban Field Study. (4) One hour of lecture and
evening fieldwork per week. Prereq-
usites: Consent of instructor. Introduction to the
metropolitan Bay Area: its history, economy, social makeup.
Evolution of urban landscapes and spatial patterns.
Social justice and conflict in the city. Business and
industry location, real estate and housing, producing
and consuming in the city. Regional characteristics of
class, race, gender and politics. Walker

C188. Geographic Information Systems. (4) Three
hours of lecture and six hours of laboratory per week.
Prerequisites: Some computer experience. Formerly C188X.
This course introduces the student to the rap-
 idly expanding field of Geographic Information Sys-
tems (GIS), which integrates both theory and applications
and provides the student with a dynamic analytical
framework within which temporal and spatial data
is gathered, interpreted, and manipulated. It emphasizes a conceptual apprecia-
tion of GIS and offers an opportunity to apply some of
those concepts to contemporary geographical and
planning issues. Also listed as Landscape Architec-
ture 189X. (F, SP) Walker

H195A-H195B. Honors Course. (1-4;4) Course
may be repeated for credit. Hours to be arranged.
Prerequisites: Admission to Honors Program. Required
for honors in geography. Students will write a thesis.
One or two semesters, at the instructor's option; if
two semesters, credit and grade to be awarded upon
completion of the sequence. (F, SP)

197. Field Study in Geography. (1-4) Course may be
repeated for credit. Regular individual meetings with
faculty sponsor. Must be taken on a passed/not passed
basis. Prerequisites: Consent of instructor. Supervised experience in application of
geography in off-campus organizations. Regular individual
meetings with faculty sponsor and written reports
required. (F, SP)

198. Directed Group Study. (1-4) Course may be
repeated for credit. One to four hours of directed group
study per week. Must be taken on a passed/not passed
basis. Prerequisites: Consent of instructor. (F, SP)

199. Supervised Independent Study. (1-4) Course
may be repeated for credit. Must be taken on a passed/
not passed basis. Prerequisites: Senior standing. Overall GPA in major of 3.00. (F, SP)

Graduate Courses

200A-200B. Contemporary Geographic Thought. (4)
Three hours of seminar per semester. Prerequisites: Required of all first year graduate students. The
class has several goals. One is to give students a sound basis upon which to judge arguments. A second is to help
students develop the skills of analysis, synthesis, and critical thinking — that is, to interpret the meaning and meaning of
our physical and human landscapes. A third goal is to introduce students to the tremendous range of geo-
graphic thought and practice, and the Environment. (4)

Prerequisites: Consent of instructor. Three hours of
consultation per week. Research seminar on
selected topics in human geography. Cuffey

220. Capital, Value, and Scale. (4) Three hours of seminar per week. This course focuses on major
advances that are either: (1) concerned with spatial
scale or geographical economy and social theory con-
cerning capitalism, human action, and space-time.
First we grapple with what "value" means in Volume 1
of Capital, paying particular attention to issues of his-
torical specificity, time, and the "value theory of labor,", then we spatialize the argument by a
close reading of David Harvey's classic, Limits to Cap-
ital. Next, we look at attempts to understand capital's
relation to, and effects of, different forms of value,
specifically in anthropology and the work of Pierre
Bourdieu. Finally, we take the issue of scale in
hope of formulating a coherent conceptual framework
for integrating across scales, from the human-body
even or smaller scales) up to global economic, cul-
tural, and ecological processes. (F, SP) Sayre

C241. Glaciology. (4) Three hours of lecture and one
hour of consultation per week. Prerequisites: Calculus. A review of recent developments in
Glacial systems, including formation of ice masses, glacier flow mechanisms, subglacial hydrology, temperature and heat transport, global flow, and response of ice sheets and glaciers.
We will use this knowledge to examine glaciers as
gメーコorphologic agents and as participants in climate
change. Also listed as Earth and Planetary Science C242. Cuffey

243. Advances in Studies of Environmental Change. (4) Course may be repeated for credit.
Three hours of seminar and one hour of consultation per week. This course will consist of review and discussion of
recently published advances in environmental change
research, with an emphasis on important advances that are either: (1) concerned with spatial
phenomena, whether at a watershed scale or plane-
tary scale, or (2) integrative in nature (meaning they tie
disparate elements to form a coherent view of the
operation of Earth systems), Chiang, Cuffey, Rhew

245. Topics in Biogeochemistry. (4) Course may be
repeated for credit. Three hours of seminar and one
hour of consultation per week. Weekly discus-
sions will be held on recent topics in atmospheric,
oceanic, and terrestrial biogeochemistry. Students will
choose recent papers in these disciplines and will be responsible for presentations and participa-
tion in discussions. Sessions may also include
roundtable discussions with invited speakers. Rhew
261. Field and Laboratory Techniques in Quaternary Paleoecology. (4) Three hours of seminar/laboratory per week, plus outside field work. Formerly Interdepartmental Course 154. Recovery of sediment cores from lakes and marshes. Field work usually in California or Mexico. Non-destructive methods of core analysis: magnetic susceptibility, X-ray radiography, photography, and light microscopy. Extraction of fossil pollen, seeds, and microscopic charcoal. Pollen and seed identification, photomicroscopy, charcoal scanning. Statistical analysis and graphical presentation of Idta. Byrne

280. Advanced Field Study in Geography. (3-7) Course must be repeated for credit. One hour of lecture and 11 hours of fieldwork per week. All day Saturday. Each additional unit requires four hours of field work per week. Extended field project required.

282. Geographic Information Systems: Applications in Geographical Research. (4) Two hours of lecture and two hours of directed practicum per week. This course introduces graduate students to a range of applications of Geographic Information Systems (GIS) in geographical research, and theoretical considerations of the meaning, strengths, and limitations of the methods. We first review, in general, how geographic variables can be represented in a database. This leads to an extended discussion of the application of GIS methods to a variety of problems in physical and human geography, using topographic data, census data, and other sources, manipulated by widely used GIS software. Students build skills and understanding through group analysis. Students are expected to complete problems. Finally, the broad question of how GIS represents geographic variables, and the strengths and limitations of the technique, are re-visited using perspective gained from examples. Students will be expected to elaborate these issues in the context of their own research programs. (SP)

295. Geography Colloquium. (1) Course may be repeated for credit. One hour and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Required of all graduate students not yet advanced to candidacy. Invited lectures on current research and fieldwork. (F,SP)

296. Directed Dissertation Research. (1-12) Course may be repeated for credit. One hour of dissertation per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Open to students directly engaged in field studies. (F,SP)

297. Directed Field Studies. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Open to students directly engaged in field studies. (F,SP)

298. Directed Study for Graduate Students. (1-6) Course may be repeated for credit. Sections 21-41 to graded on a letter-grade basis. Special tutorial or seminar on selected topics not covered by available courses or seminars. (F,SP)

299. Individual Research. (1-8) Course may be repeated for credit. Individual research for graduate students in consultation with staff member. (F,SP)

301. Professional Training: Teaching Practice. (1-4) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis.

C301. Communicating Ocean Science. (4) Two and one-half hours of lecture, one hour of discussion, and two hours of fieldwork per week. Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science; junior, senior, or graduate standing; consent of instructor required for sophomores. For graduate students interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations. Also listed as Earth and Planetary Science C301 and Integrative Biology C215. (SP) Ingram

C302. Effective Scientific Communication. (3) Two hours of seminar per week. This course will introduce methods of organizing and delivering oral presentations, initiating and organizing manuscripts, and utilizing digital communication methods, such as web-based media. Students will develop effective communication techniques through in-class experience. This class will have an emphasis on the sciences but will be useful and open to graduate students of all disciplines. Also listed as Envion Sci, Policy, and Management C302. (F) Rash, Rnew

German
(College of Letters and Science)

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Professors
Anton Kaes, Ph.D., Stanford University
Claus Kramsch, Agrégation d’Allem, Sorbonne
Winfried Kudszus, Ph.D., University of California, Berkeley
Hakaus Larger, Ph.D., University of Zurich
Miriam Loper, Ph.D., University of Michigan
Thomas F. Shannon, Ph.D., Indiana University
Elaine C. Tarrant, Ph.D., Harvard University
Bluma Goldstein (Emerita), Ph.D.
Gerd Hille (Emeritus), Ph.D.
Joseph Mickle (Emeritus), Ph.D.
Hinrich C. Stebb (Emeritus), Dr. phil.
Johan A. Snaper (Queen Beatrix Professor Emeritus), Ph.D.
Fredric T. Tabach (Emeritus), Ph.D.

Associate Professor
Denz Gützk, Ph.D., Free University of Berlin

Assistant Professors
Jeroen Dewulf, Ph.D., University of Bern
Karen Feldman, Ph.D., DePaul University
Chen Tu, Ph.D., Columbia University

Lecturer
Nikolas Euba, M.A. Ludwig Maximilian University, Munich

Affiliated Faculty
Margaret L. Anderson, Ph.D. (History)
Judith Butler, Ph.D. (Rhetoric)
Pheng Cheah, Ph.D. (Rhetoric)
David Cohen, Ph.D. (Rhetoric)
John Connolly, Ph.D. (History)
Hubert L. Dreyfus, Ph.D. (Philosophy)
John Elton, Ph.D. (History)
Barry Eichengreen, Ph.D. (Economics)
Hannah Gensler, Ph.D. (History)
Mei Gordon, Ph.D. (Theater, Dance, and Performance Studies)
Gary B. Holland, Ph.D. (Linguistics)
Marin Jay, Ph.D. (History)
John Lindow, Ph.D. (Scandinavian)
Linda Rugg, Ph.D. (History)
Mark Sandberg, Ph.D. (Scandinavian)
Karin Sanders, Cand. Mag. (Scandinavian)
Kaja Silverman, Ph.D. (Rhetoric and Film)
Hans Sluga, Ph.D. (Philosophy)
D. Paul Thomas, Ph.D. (Rhetoric and Film)
Thomas Brady (Emeritus), Ph.D.
Richard M. Buxbaum (Emeritus), Ph.D.
Carol J. Clover (Emerita), Ph.D.
Gerald Feldman (Emeritus), Ph.D.
Ernst B. Haas (Emeritus), Ph.D.
Daniel Heartz (Emeritus), Ph.D.
Alan Nelson (Emeritus), Ph.D.
Anthony Newcomb (Emeritus), Ph.D.

Department Overview
The Department of German offers undergraduates the opportunity to obtain a broad background in the field of German language, literature, and culture, and introduces them to the principles of literary analysis and criticism. German language instruction ranges from elementary courses to upper division courses. Upper division courses cover German literature and culture from the earliest times to the present, as well as the linguistic study of German.

The graduate program in literature and culture emphasizes seminars that provide an in-depth study of more specialized areas. The graduate offerings in linguistics constitute a complete program of study in Germanic languages. Instruction in methodology is provided for graduate student instructors and prospective teachers, and seminars in applied linguistics and second-language acquisition provide a theoretical and practical foundation for teachers.

The curriculum in Dutch Studies focuses on the language, literature, and culture of The Netherlands and Flanders.

The Major

Lower Division. German 1, 2, 3, 4, or the equivalent.

Upper Division. Ten upper division courses totaling at least 30 units; at least five courses and 15 units must be taken at Berkeley. The following courses are required: German 100, 101, and 102. Three additional courses in which a knowledge of German is required, as indicated in the course descriptions that follow or in the departmental booklet; German 100 or 101 is prerequisite for these courses. Two courses may be taken from a list of affiliated courses taught outside the German department. (The list is available in the German department.) Courses must be taken in the literature and culture of at least two different centuries; consult the major adviser or undergraduate student affairs officer when in doubt about this requirement.

Transfer Students. If you are transferring from another institution and wish to declare a major in German, see the major adviser or the undergraduate student affairs officer.

Honors Program. A GPA of 3.5 in the major and an overall GPA of 3.3 are required for participation in the program during the senior year.

Course requirement: Four units in the H196 series (H196A and H196B or H196) and an honors thesis. The Honors Committee, consisting of the major adviser and the thesis director, approves the topic and evaluates the thesis.

The Minor

Lower Division. German 1, 2, 3, 4, or their equivalent.

Upper Division. Five courses of which three must be taken at Berkeley. Students must enroll in at least two courses in which the knowledge of German is required (see the course descriptions that follow or the departmental booklet for current information). One affiliated course from another department or a course in Dutch or Yiddish from the German Department may be applied to the minor.

A letter grade of C or better is required for each upper division course applied to the minor.
Graduate Program

The M.A. Program: A Bachelor of Arts degree (or its equivalent) in German or a related field is required for admission to either the literature and culture option or the linguistics option.

(1) Literature and Culture Option: Students are not admitted solely to pursue the M.A., which is an integral part of the Ph.D. program. Students must complete a total of 24 units, 12 of which must be in graduate courses in the German department. An examination, involving interpretation of a literary text, is normally taken in the third semester.

(2) Linguistics Option: The program offers a broad range of courses in contemporary and historical language and linguistics, with programs in German and Germanic linguistics, including recent directions in such approaches as discourse grammar, linguistic field work, and semiotics. Students have to complete at least 57 units, 28 of which must be in graduate courses. A knowledge of Middle High German, as well as proficiency in oral and written New High German, are required. Students are granted the degree upon passing a written examination.

For more detailed information on the M.A. program in linguistics, students should consult the German department’s web site at german.berkeley.edu.

The Ph.D. Program: The German department offers Ph.D.'s in German and Germanic linguistics and in literature and culture. The program aims at a comprehensive historical knowledge of German literature and culture and/or linguistics and is designed to encourage students to develop intellectual independence and creative initiative.

(1) Doctor of Philosophy: Literature and Culture. This is an interdisciplinary program with a wide array of approaches to literature and culture. Candidates for the Ph.D. in German literature and culture should have: (1) advanced courses in German; (2) a thorough knowledge of, and sound judgment in, German literary, cultural, and intellectual history; (3) a working familiarity with various critical approaches to these fields; and (4) the ability to pursue original research and to argue their ideas convincingly both in English and in German. Students achieve a broad historical overview of German literature and culture; develop cultural competence and teaching proficiency; become familiar with differing approaches to literary, cultural, language, and linguistic study; and enhance research skills. Permission to enroll in the Ph.D. program is granted if the M.A. examination taken in the third semester shows evidence of satisfactory progress. By the eighth semester, the student is examined in the qualifying examination which考察s the student’s ability to embark on the dissertation project. The capacity for original thinking, the ability to conceptualize problems, expansion of interdisciplinary horizons, and a beginning familiarity with the workings of the profession are goals at this level. Students must also acquire competence in an outside field complementary to the major field of concentration in German literature and culture; the outside field is tested in the qualifying examination.

Language requirements: a reading knowledge of two foreign languages other than German, or advanced cultural competence in one foreign language other than German.

(2) Doctor of Philosophy: Linguistics. An M.A. in Germanic linguistics or its equivalent is a prerequisite for admission. Students are expected to consult with their graduate adviser in order to set up their best plan of study for the Ph.D. For more information on research, students may choose to concentrate on contemporary or historical German language. They are expected, however, to be knowledgeable in all periods of the history of the German language, as well as in all components of its grammar. As part of their train-

ing, students are encouraged to participate in public lecture forums, both on and off campus, and to learn to write publishable papers.

Language requirements: a reading knowledge of two foreign languages other than German or native fluency in one foreign language other than German. For more detailed information on the Ph.D. program in literature and linguistics, students should consult the German department’s web site at german.berkeley.edu.

Dutch Studies

A description of the group major in Dutch Studies can be found in the "Dutch Studies" section of this catalog. Descriptions of the courses presenting the language, literature, and culture of the Netherlands offered by the Department of German follow the German courses.

German

Lower Division Courses

1. Elementary German 1. (5) Five hours of lecture per week. All four foreign language skills (reading, writing, speaking, and listening) are addressed to help students acquire communicative competence in the German language while being sensitized to the links between language and culture. This course is for students with no prior knowledge of German. (F,SP) Euba 1E, 2G. Elementary German for Graduate Students. Five hours of lecture for seven and one-half weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Prior exposure to German equivalent to one year of high school German. Students review and continue to develop the basic elements of communicative competence in both spoken and written language while being sensitized to the links between language and culture. This course covers the same material as 1 in a condensed way and at an accelerated speed. Upon completion of this course, students will qualify for enrollment in 2. (F,SP) Euba

1G. Elementary German for Graduate Students. Five hours of lecture for seven and one-half weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Prior exposure to German equivalent to one year of high school German. Formerly 12. Students review and continue to develop the basic elements of communicative competence in both spoken and written language while being sensitized to the links between language and culture. This course covers the same material as 1 in a condensed way and at an accelerated speed. Upon completion of this course, students will qualify for enrollment in 2. (F,SP) Euba

2. Elementary German 2. (5) Five hours of lecture per week. Prerequisites: 1 or equivalent. In this course, students further develop communicative competence in the German language and expand their sensitivity towards the relationship between language and culture. While all language skills will be addressed, additional emphasis will be on the various styles of written and spoken German. (F,SP) Euba

2G. Elementary German for Graduate Students. Five hours of lecture for seven and one-half weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 1G. Elementary German for graduate students preparing for reading examinations. (F,SP) Staff

2. Intermediate German I. (5) Formerly 5A. Five hours of lecture per week. Prerequisites: 2 or equivalent. While continuing to expand students’ communicative competence in German, this content-driven course will require a reasonable level of proficiency in the German language. While sensitizing students to the links between language and culture, the workshop includes a weekly film and a conversation table. This workshop combines German 1 and 2 for which students may enroll selectively. (F,SP) Staff

3. Intermediate German II. (5) Five hours of lecture per week. Prerequisites: 2 or equivalent. While continuing to expand students’ communicative competence in German, this content-driven course will require a reasonable level of proficiency in the German language. While sensitizing students to the links between language and culture, the workshop includes a weekly film and a conversation table. This workshop combines German 1 and 2 for which students may enroll selectively. (F,SP) Staff

4. Intermediate German III. (5) Five hours of lecture per week. Prerequisites: 2 or equivalent. While continuing to expand students’ communicative competence in German, this content-driven course will require a reasonable level of proficiency in the German language. While sensitizing students to the links between language and culture, the workshop includes a weekly film and a conversation table. This workshop combines German 1 and 2 for which students may enroll selectively. (F,SP) Staff

R prefix=course satisfies R&c requirement
AC suffix=course satisfies American Cultures requirement

Functional German: The language of modern, urban society, including basic Pike Street vocabulary.
narr per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not
passed basis. Sections 3-4 to be graded on a letter-
grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in a crucial second-year transition. The topics vary from department to department and semester to semester. Enrollment limited to 15 sopho-
more. (F,SP)
98. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Reading Culture." Consent of instructor. Group study of selected topics not covered by regularly scheduled courses. Topics may be initi-
ated by students under the sponsorship and direction of a member of the German department's faculty. (F,SP) Staff
99. Supervised Independent Study. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prere-
requisites: Consent of instructor. Independent study and research by arrangement with faculty. (F,SP) Staff
Upper Division Courses
Unless otherwise indicated, upper division courses require no knowledge of German.
100. Introduction to Reading Culture. (3) Three hours of lecture. Prerequisites: Knowledge of
German required. The course is intended to acquaint students with selected works from German cultural history and to familiarize them with various methods of interpretation and analysis. Required of all first-semester undergraduates. (F,SP) Staff
101. Advanced German: Conversation, Composi-
tion and Style. (3) Three hours of lecture per week. Prerequisites: 100 or equivalent. Required of all students of German. Hours to be arranged. Consent of instructor. Independent study and research by arrangement with faculty. (F,SP) Staff
102A. Advanced Language Practice: German Per-
formance. (3) Three hours of lecture per week. Prere-
requisites: 100 or equivalent. Open to freshmen and sophomores. Formerly 188. Analysis, discussion, adaptation, and public performance of actual texts from German Kabaret, such as comedic skits, political and social satire, parody, humorous poetry. Text selection will vary each semester. (F,SP) Euba
102B. Advanced Language Practice: German for
Business. (3) Three hours of lecture per week. Prere-
requisites: 100 or equivalent. Open to native spe-
kakers. Formerly 103. This advanced language/culture course focuses on the structure and practice of German business, as well as current economic, polit-
ical, and cultural issues relevant to conducting busi-
ness in the German-speaking world. German-language media, literature, and Internet resources inform
a broad of contemporary developments in the busi-
ness scenes of the German-speaking countries and the rest of Europe. Language skills practiced in-clude business writing, presentations, and negotia-
tion. (F,SP) Toth
102C. Advanced Language Practice: German for
Information Technology and Science. (3) Three hours of lecture per week. The course is designed to help those in the sciences to become acquainted with the linguistic structures that underlie German scientific texts. It will also serve as an intro-
duction for the students of German to the world of science, which German-speaking scientists have helped create and expand. We will move through a number of major specific disciplines, developing the tools for vocabulary acquisition. Each student will be better able to concentrate within their specialty in order to read, write, and speak within that disci-
pline with a high degree of accuracy and clarity. (F,SP) Clarke
102D. Advanced Language Practice: Popular Cul-
ture in Germany. (3) Three hours of lecture per week. Focusing on popular culture in German speaking coun-
tries, this advanced level language course will help students improve and expand on spoken and writ-
ten language functions utilizing a variety of works from different genres in journalism, broadcasting, litera-
ture, fine arts, music, and the cinema. Readings, screenings, and assignments will help advance students' language skills and further develop their communicative competencies in German at a linguistic and stylistic level appropriate for an advanced level. (F,SP) Euba
104. Seminar Colloquium. (3) Three hours of lecture per week. Prerequisites: 102 or consent of instructor. Returners from EAP Goettingen welcome. This course is intended for students who wish to improve their skills in reading, speaking, and writing German. We will work on the written and oral components of Mid-
ern German during the first decades of the 20th century, regardless of when they were written. Segments of philosophical writings (Schopenhauer, Kierkegaard, Nietzsche), literary works by Th. Mann, but also texts by scientists and journalists will be ana-
lyzed. Participants are expected to prepare several oral presentations and approximately one written assignment per week. No midterm or final examination. (F,SP) Hillen
105. Middle High German for Undergraduates. (3) Open to graduate students when 203 is not offered. Three hours of lecture/translation/discussion per week. Prerequisite: Knowledge of modern German required. The course introduces students to the fundamental vocabulary and grammar of Middle High German and will read selections from major works of the Middle Ages. Selections from major works from the 13th century. (F) Tennant, Largent
C106. Literacy through Literature. (3) Three hours of lecture per week. Formerly 106. Exploration of the role that literature can play in the acquisition of literacy in a first and second language. Linguistic and psycho-
linguistic issues: orality and literacy, discourse text, schema theory, and reading research. Literary issues: stylistics and critical reading, reader response, structure of narratives. Educational issues: the liter-
ary text in the social production and reception by intended and non-intended readers. Also listed as Education C145. Kramsch
108. Literary Translation. (3) Three hours of lecture/ discussion per week. Prerequisites: Two upper division courses in German literature. This course introduces students to the problems of literary translation from German to English, (SP) Kudszus
C109. Language and Power. (4) Three hours of lec-
ture and one hour of discussion per week. Formerly 109. Multidisciplinary explorations into the origins, nature, and exercise of language as social symbolic power. Theories of power—language, social and cultural theory, and critical discourse analy-
sis. Topics include language and myth, the mean-
ining of meaning, the economy of verbal exchanges, perspec-
tive and ideology in language, institutional discourse, gender and discourse, and linguistic impe-
rialism. Also listed as Languages and Science C180T. Kramsch
110. The Literature of the Middle Ages. (3) Three hours of lecture/discussion per week. Introduction to the major literary monuments of the Hohenstaufen period. Intended for undergraduates with no knowledge of Middle High German. (F,SP) Tennant, Largent
112. Early Modern Literature. (3) Three hours of lecture/ discussion per week. Prerequisites: Knowledge of
German required. Major texts from the 15th through the 17th century. (F,SP) Tennant, Largent
C113. Western Mysticism: Religion, Art, and Lit-
erature. (4) Three hours of lecture and one hour of discussion per week. The course will focus on exam-
pling of mystical thought from the traditions of Christian and Jewish mysticism since the Middle Ages. In addi-
tion to the introduction of the students to basic texts and concepts, we will discuss the effects of mystical thought on art and literature from the Dark Ages up to today. Also listed as Religious Studies C118. (F,SP) Largent
123. From 1800 to the Present. (3) Hours of lecture/discussion per week. Prerequisites: Knowledge of
German required. The social, political, and historical background to German literature since the French Revolution. Seeba
131. Goethe. (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. An introduction to Goethe's prose, drama, and poetry. Staff
140. Romanticism. (3) Three hours of lecture/discus-
sion per week. Literature, philosophy, and aesthetics of the Romantic period. Staff
141. German Literature and the French Revolu-
tion. (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. This course will reflect recent attention to tra-
ditional periods of German literature by taking account of the central importance of the German response to the Revolution for the development of Weimar Classicism and early Romanticism. We will also look at the politically changed reception of German Classicism in the 19th century, and at a 19th- and 20th-century literary confrontation with the Revolution (Buechner, Weiss). Wilson
148. Topics in Narrative. (3) Course may be repeated for credit. Topics vary. Three hours of lecture/ discussion per week. Analysis of German narrative forms. Topic varies. (F,SP) Staff
151. Eighteenth- to 21st-Century German Poetry. (3) Three hours of lecture/discussion per week. Pre-
requisites: Knowledge of German required. Repre-
tative texts from 18th- to 21st-century German poetry will be studied closely. Methodological ques-
tions regarding the interpretation of poetry in general will also be discussed. Staff
152. Modern Literature. (3) Three hours of lecture/ discussion per week. A careful study of Kafka's writ-
ings will consider them in their social, historical, and philosophical premises of three of the most influ-
ential thinkers in the German-speaking world and to examine in detail several works in which problems of history, ideology, values, and methodology are con-
sidered. Lectures and readings in English. (F,SP) Staff
C157B. Marx, Nietzsche, Freud. (4) Students will receive no credit for C157B after taking 157B. Three
Hours of lecture and one hour of discussion per week. The aim of the course is to explore the central theoretical and philosophical premises of three of the most influential German-speaking postwar intellectuals: Herbert Marcuse, Niklas Luhmann, and Jürgen Habermas. We will examine in detail several works in which problems of history, ideology, values, and methodology are considered. Lecture and readings in English. Also listed as Letters and Science C1407. (F, SP) Holub

157C. Heidegger and Arendt. (4) This course is an introduction to the philosophical work of Martin Heidegger and Hannah Arendt. We will begin with an investigation into Heidegger's conceptualizations of language, time, and human dwelling. We will then move to an examination of Arendt's political philosophy, including her focus on the public/private distinction. Taught in English. (F, SP) Staff

157D. Adorno, Benjamin, Habermas. (4) This course examines the writings of the Frankfurt School of Critical Theory, a major branch of western Marxism. Focusing on confrontations of modernity, the lectures will deal with three seminal thinkers: Walter Benjamin, known for his genial insights into the culture of modernism; Theodor Adorno, the versatile philosopher and aesthetics theorist of the avant garde; and Jürgen Habermas, the most influential German intellectual after World War II. (F, SP) Staff

160. Politics and Culture in 20th-Century Germany. Three hours of lecture/discussion per week; plus additional time for film screenings. Lectures and readings in English. (F, SP) Staff

160A. A Century of Extremes. (4) Formerly 150. The story of Germany in the 20th century is a dramatic one, comprising two world wars, genocide, Allied occupation, a division into two states on opposing sides of the Cold War, and an unexpected reunification. This course offers an introduction to the history and culture of contemporary Germany. It aims at a systematic account of German history in the 20th century. It tries to provide a better understanding of today's German culture and politics. In addition to following a chronological approach, we will frequently stop to explore issues that are crucial to providing insights into current developments.

160B. Fascism and Propaganda. (4) This course will focus on the theory and practice of propaganda during the 12 years of the Third Reich. It takes a close look at the ideology the Nazis tried to transmit, the techniques, organization, and effectiveness of their propaganda. Challenging the idea of the total power of propaganda, it looks for the limits of persuasion and possible other reasons for which Germans might have decided to follow Hitler. Sources will include the press, radio, film, photographs, political posters, and a few literary works of the time.

160C. A Divided Nation. Politics and Culture in Germany 1945-1990. (4) This course offers an introduction to the history and culture of divided Germany in the era of the Cold War. It will look at the different ways the two states dealt with the country's pre-1945 history, the relations to the Allied Powers, and the major cultural shifts which eventually created a watershed in the history of German mentalities. We will look at various kinds of sources, including literature and film. Major national debates will be touched upon, such as breaks and continuities within the national elites, re-armament and pacifism, the student movement, opposition and counterculture, and the rise and confrontation of totalitarianism. We will also discuss the problems and opportunities of re-unification. (F, SP)

160D. Multicultural Germany. (4) This course will deal with the culture and politics of minorities in contemporary Germany. We will discuss how ethnic identities are constructed, contested, and marketed. We also engage critically with such concepts as migration, assimilation, citizenship, diaspora, hybridity, and authenticity, as well as rhetorical strategies of "speaking in" on exemplary texts and films from Germany but include comparisons with minority experiences in other countries. (F, SP)

166. Gender Perspectives in Literature. (3) Course may be repeated for credit as topic varies. Three hours of lecture/discussion per week. This course offers an introduction to thematic and theoretical issues of gender and sexuality in German culture. Materials may include literary texts, films, and other works of visual culture. Course will focus on developing skills for cultural analysis using gender and feminist theories. All readings in English. For specific topic contact German department. (F, SP) Staff

167. Cultural Criticism. (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German may be required depending on topic. Topics will include Marxism and culture, Post-Structuralism, Gay and Lesbian Studies, and Feminist theories. Students must have prior course in cultural analysis for this section. All readings in English. Taught in German. (F,SP) Staff

168. Yiddish Literature and Culture in Translation. (3) Course may be repeated for credit with different topic. Three hours of lecture per week. Introduction to the development of Yiddish literature from the start of the modern period, with particular emphasis on the global flourishing of the language of Ashkenazi Jews from the mid-19th century until the Nazi genocide and its aftermath. Works include a wide range of fiction, essays, political tracts, journalism, radio, photography, music, and theatrical and film performance. (F) Kudszus

170. History of the German Language. (3) Three hours of lecture/discussion per week. Designed for undergraduate and graduate students interested in the history of the language of the newly united Germany, which received a rich linguistic legacy from the mid-19th century. Through Hildebrand, Schlegel, Heine, and Grimm, to Grass and Der Spiegel. Discussion, via linguistic principles, of language processes in the genetic development of the German language, as well as its interchanges with closely and remotely related languages, such as English and Russian. (F) Rauch

173. The Phonetics and Phonology of Modern German. (3) Students will receive no credit for 173 after taking 103 before Spring 2002. Three hours of lecture/discussion per week. A course designed for undergraduates and graduates on the structure of modern German covering the fundamentals of German phonetics and phonology, with comparison to English. Some discussion of German dialect phonology. (F,SP) Shannon

174. The Morphology and Syntax of Modern German. (3) Three hours of lecture/discussion per week. A course designed for undergraduates and graduates on the grammatical structure of modern German covering the fundamentals of German morphology, syntax and semantics, with comparison to English. (F,SP) Rauch

175. Undergraduate Seminars. Three hours of seminar per week. Prerequisites: 100. (F, SP)

175B. 20th-Century Poetry. (3) Analysis of various poetry from the beginning of the century to today, including works by Trakl, Benn, Bachmann, Sachs, Celan, and Brinkmann. A 20-page research paper will be part of the requirements for this course. Kudszus

176. German Cultural History in a European Context. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. This course will be taught in 2002. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. It will examine major topics, concepts, and theories pertaining to the cultural identity of western Europe, selected around a specific theme. The specific theme will be decided upon from semester to semester. (F,SP)

177. The Cultural History of Switzerland in Literature and Film. (4) Three hours of lecture/discussion per week. On the basis of literary texts (in translation) and films, we will discuss major topics pertaining to the cultural history of Switzerland. Special attention will be paid to the cultural history of Switzerland in a Euro-
Graduate Courses in Literature

Introductory

200. Proseminar in German Literature. (2) Two hours of lecture/discussion and one hour of practical exercises per week. The course will give a brief introduction to the history of Germanistik, draw attention to bibliographical and research tools, dwell on problems relating to critical editions of modern authors, familiarize students with Germanistik as a profession in the U.S.A., and focus upon literary theory. Required of all M.A. candidates. Staff

201. Major Periods in German Literature. Three hours of lecture/discussion per week. Designed expressly for M.A. candidates. Final exam, no paper.

201A. Literature of the Middle Ages. (4) Survey of medieval German literature that concentrates on monuments of the Hohenstaufen period but also includes representative works from the later 13th, 14th, and 15th centuries. Intended for M.A. candidates but open to all students with a working knowledge of Middle High German. Tennant, Largier

201B. 16th and 17th Century. (4) Recommended for M.A. candidates. (F) Tenant, Largier

201C. 18th Century. (4) An introduction to major works of late Enlightenment. Sturm and Drang, and Classicism to Schiller’s death. Staff

201D. 19th Century. (4) A study of major texts from Novalis to Fontane to explore the changing functions of literature, its ideological implications and social significance within 19th century German thought. (F) Seuba

201E. 20th Century. (4) A critical overview of major literary and intellectual currents between the initial and the final turn of the century. We will explore literary, sociocultural, and philosophical forces in their consequential interactions. Considerations will include Freud, Dada, Expressionism, National Socialism, Exile, post-World War II literature, counter-cultural texts, and post-modernism. Kaes

202. Stilistikum. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. This course is suggested as an introduction to the stylistics of critical writing and is designed for graduate students who want to improve their writing skills and their oral performance in German. Some exercises will be devoted to academic presentations. (F,SP) Raehse-Weber

203. Readings in German Philosophy. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: One year reading knowledge of German. (F) Rauch

204. Compact Seminar. (2) Course may be repeated for credit. Two hours of seminar for four weeks. A compact seminar designed to feature distinguished短-term visitors from German-speaking countries who have expertise in German literature and culture to teach topics that complement regular departmental offerings. One short paper is required. Taught in German. (F,SP) Staff

205. Studies in Medieval Literature. (4) Two hours of seminar and one hour of tutorial per week. Prerequisites: 106 or 203. (F,SP) Tenant, Largier

206. Studies in the Early Modern. (2) Two hours of seminar per week. Survey of texts from the 15th and 16th centuries. A good reading knowledge of Middle High German is recommended. Tennant, Largier

208. Studies in the 17th Century. (4) Two hours of seminar per week. A study of a series of topics dealing with genres, authors, or themes. Whatever the topic, the high points of the century will be treated. Staff

210. Studies in the 18th Century. Two hours of seminar and one hour of tutorial per week. Staff

210A. Age of Enlightenment. (4) Formerly 211A. Literature texts will be studied as historical documents illuminating changes in literary theory and in religious and philosophical thought during the Enlightenment. Texts by Lessing, Herder, and Lenz, and some Storm and Stress plays.

210C. Storm and Stress and Literary Jacobinism. (4) A comparison of the two literary movements in the late 18th century will be discussed in the wider context of oppositionism in literature. Wilson

212. Studies in the 19th Century. Two hours of seminar and one hour of tutorial per week. Staff

212A. Topics in Romanticism. (4) Course may be repeated for credit. Major authors and texts of the romantic period will be discussed. (F) Staff

214. Studies in the 20th Century. (4) Course may be repeated for credit as topic varies. Two hours of seminar per week. Staff

Author

234. Goethe. Three hours of seminar per week. Prerequisites: A good reading knowledge of Middle High German. Tennant, Largier

234A. Early Goethe. (4) Concentration on the works of Goethe’s Sturm und Drang period and Faust I. Various interpretations of the major works of the author will be examined in the course of research in this period. (F,SP) Weisinger

Theory

255. Interpretation and Criticism of Poetry. (4) Three hours of seminar per week. (F) Kudszus

256. Problems of Literary Theory. (4) Course may be repeated for credit. Two hours of seminar and one hour of tutorial per week. Topics vary from year to year. For current topic see the department’s “Course Descriptions” booklet. Staff

258. Linguistic Approaches in Literature. (4) Three hours of lecture per week. Introduction to basics of stylistics, poetics, and literary discourse analysis. Principles of literary interpretation based on the linguistic features of texts and their reception by native and non-native readers inform students’ close readings of German literary texts of prose, poetry, and plays. Topics include deixis, face-work, focalization, indexically, intertextuality, metaphor, performative, point of view, repetition, tense and aspect, speech act, speech genre. (F,SP) Staff

263. Studies in Language. Three hours of seminar per week.

263A. The Process of Translating. (4) Questions of interpretation, writing and intertextuality will be explored in connection with translating a 20th century literary work. Kudszus

263C. Poetry and Thought. (4) Three hours of seminar per week. Prerequisites: Previous work with German poetry and philosophy. This seminar examines the interrelationship of poetic and philosophical discourses, with an emphasis on roles and functions of language. Questions of style and writing will interrelate different genres of poetry and thought. The seminar will explore a tradition in which poetic thought and highly reflective poetry approach and at times merge with each other. (F,SP) Kudszus

265. Film Theory: Historical and Systematic Perspectives. (4) Two hours of lecture/discussion plus one hour of tutorial per week. Prerequisites: 200 or equivalent. Formerly 260C. This seminar will examine traditional and recent critical approaches to the study of film. Knowledge of German and background in literary theory required. (SP) Kaes

266. Aspects of Literary and Cultural History. (4) Three hours of seminar per week. A comparison of literary and cultural developments in Germany and the United States. Emphasis on individual research designed to develop teaching materials. Staff

Graduate Courses in Linguistics

271. Comparative Germanic. (4) Three hours of seminar per week. Advanced topics in Germanic phonology, morphology, syntax, semantics, pragmatics. The principal Germanic dialects viewed within laryngeal theory and reconstruction. (SP) Rauch

273. Gothic. (4) Three hours of lecture/discussion per week. Study of the linguistic structures of the earliest Germanic dialect with a sizable corpus. Indo-European origins, Germanic relationships, and Gothic as a synchronic construct are considered. (F) Rauch

276. Old High German. (4) Three hours of lecture per week. Reading of poetic and prose texts in Old German. The course will give a brief introduction to Old German and its filiation with English and German. See also Dutch 107. Shannon

280. North Sea Germanic. (4) Three hours of seminar per week. Readings and discussion of poetic and prose texts in the Ingangena languages (broadly construed) not covered elsewhere: Old Low Franconian, Middle Dutch, Old Frisian, Middle Low German. (F,SP) Shannon

282. Old Saxon. (4) Three hours of lecture/discussion per week. Study of the most provocative of the major Germanic languages in terms of structural identification. The literary and ethnographic setting of the Helland and its shared isogramm. Rauch

285. Approaches and Issues in the Study of Modern German. (4) Two hours of seminar and one hour of tutorial per week. Prerequisites: 102. A survey of relevant contemporary issues and topics in linguistic research on the structure of German. Shannon

290. Seminar in German Linguistics. (4) Course may be repeated for credit. Two hours of seminar and one hour of tutorial per week. Variable topic. For specific topic, contact departmental office.

291. Methods and Issues in German Morphology. (4) Two hours of seminar per week. The seminar will deal with the methods and results of morphological analysis as applied to the German language. It will introduce basic concepts and means of morphological analysis as well as study and apply various theories of word structure to German. The primary concern will be the synchronic analyses of modern German word formation, but questions of a diachronic nature as well as issues about inflection will also be discussed. (SP) Shannon

292. German Syntax. (4) Two hours of seminar per week. Discussion of current syntactic theories as applied to a number of issues in modern German syntax with an eye toward their description and explanatory potential. Typological comparison, especially with English.

293. German Semantics. (4) Two hours of seminar per week. Concentration on the essential categories of semantics via data from German and Germanic. Ex- tensive discussion of semantic change, the semantics of predication, and the semantics of pathological language.

294. Contrastive Grammars. (4) Two hours of seminar per week. Theory and methods of contrastive linguistic analyses. Study of pairs of contrastive languages sets in two time perspectives: (1) Modern German with Modern English and (2) Early New High German with Early New English. Rauch
295. Dialectology. (4) Two hours of seminar per week. Discussion of modern methods and results in the investigation of present-day German dialects. (F) Shannon

296. Semiotics. (4) Two hours of seminar per week. Discussion of the principal figures from the basic disciplines of philosophy, biology, and linguistics influential in current trends in semiotics. Application of Percean semiotics to a wide range of semiotic modalities. Rauch

Group and Individual Study

298. Directed Group Study. (2-8) Course may be repeated for credit as topic varies. Seminar. Must be taken on a satisfactory/unsatisfactory basis. (F,SP) Staff

299. Individual Study for Graduate Students in Literature and Linguistics. (2-12) Course may be repeated for credit. Individual conference. Primarily for post-M.A. students engaged in exploration of a restricted field, involving writing of a report, and for students writing their doctoral dissertations. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated once for credit. Individual conference. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: M.A. in German, independent research study in consultation with graduate advisor to provide an opportunity for Ph.D. students to prepare for the qualifying examination. (F,SP) Staff

Courses in the Teaching of German

350. Seminar in Foreign Language Pedagogy: Teaching College German I. (3) Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. The course focuses on the theory and practice of foreign language pedagogy. It introduces students to second language acquisition research and its relationship to pedagogy, providing a basis for staying theoretically informed and for participating in professional discourse of the field throughout one's teaching career. It also emphasizes critical reflection on pedagogical practices. Includes a practical component dealing directly with the day-to-day challenges of teaching elementary German. (F) Staff

351. Seminar in Foreign Language Pedagogy: Teaching College German II. (3) Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. This course expands upon the basis of methodology and theory of language teaching covered in 350 and prepares students for teaching at the intermediate level. The theoretical and practical exploration of recent developments in second language teaching concentrates on instructional technology, teaching writing, teaching literary texts, and curriculum design. Students reflect on their development as teachers through a journal, video, and observation of their teaching, and the final portfolio. (SP) Staff

Yiddish

Upper Division Courses

101. Elementary Yiddish. (5) Five hours of lecture/discussion per week. Introduction to Yiddish language and literature. Attention to reading, writing, and speaking in the context of the historic Yiddish cultural environment. (F)

102. Intermediate Yiddish. (5) Students will receive no credit for 2 after taking 102. Five hours of lecture/discussion per week. Prerequisites: 101 or equivalent. Further intensive study of Yiddish, building on the foundation established in 101. Advanced grammar and introduction to the reading of original texts. (SP) Staff

103. Readings in Yiddish. (3) Course may be repeated for credit when readings change. Three hours of lecture/discussion per week. Prerequisites: 102 or equivalent, or consent of instructor. Study of selected Yiddish texts including prose, poetry, and drama, from various periods and geographic areas, in the context of time and place. Review of relevant grammatical topics. Increased attention to the Hebrew/Arabic component. Selections may vary from semester to semester. (SP) Staff

Dutch

Lower Division Courses

1. Elementary Dutch. (5) Five hours of lecture and one hour of laboratory per week. Dutch language course for beginners. Focus of the course on acquiring basic communicative competence in the language, i.e., developing the ability to appropriately use the language (spoken as well as written) in authentic situations. (F,SP) Staff

2. Elementary Dutch. (5) Five hours of lecture and one hour of laboratory per week. Prerequisites: 1 or equivalent. In this course, one reinforces and expands knowledge of grammar and vocabulary, increases fluency through oral and written exercises, and identifies the knowledge gained in 1. (F,SP) Staff

10. Dutch for Reading Knowledge. (3) Three hours of lecture/discussion per week. Research scholars are often faced with the difficulty of reading and understanding Dutch texts. They need to only have a reading knowledge of the language and one to be able to decipher, for instance, texts written in 17th-century Dutch. This course is tailored to the specific needs of these students. Taught in English. (F,SP) Staff

35A. Cultural History of the Low Countries (Belgium, the Netherlands, Luxembourg). (3) Three hours of lecture per week. This course offers a general survey on the cultural history of Belgium, the Netherlands, and Luxembourg. Through written texts, audiovisual materials, and discussions, we will study important historical, social, political, and cultural aspects of these three countries that represent European history in a nutshell. All readings and discussions in English. (F,SP) Staff

Upper Division Courses

107. The Structure of Modern Dutch. (3) Three hours of lecture per week. A basic course on the structural properties of modern Dutch, including phonetics and phonology, morphology, and syntax. Comparison with English and German. Staff

110. Advanced Dutch. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 2 or equivalent. Focus of this course is on reinforcing and expanding the knowledge acquired in 2. All the major grammar will be reviewed. Written and spoken proficiency will be improved. (F,SP) Staff

125. Conversation and Composition. (4) Course may be repeated once for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: 110 or consent of instructor. This course is designed to improve both the oral and written style of the student in Dutch, employing a variety of sources ranging from the newspaper to the essay to the creative forms. The use of correspondence, both written and verbal, will be taught, as well as the widely-varied spoken styles. (SP) Staff

140. Topics in Dutch Literature. (3) Three hours of lecture/discussion per week. Prerequisites: 2 or equivalent. One hour of discussion per week. This course covers a number of canonical Dutch poets and authors to the image in Dutch literature, in a nutshell. All readings and discussions in English. (F,SP) Staff

176. The Jews of the Low Countries. (3) Three hours of lecture per week. A history of Jewish communities in the Netherlands from early Middle Ages until today. Reflection upon relationships between Catholic or Protestant majorities and the Jewish minority, and between Sephardic and German Jews in Amsterdam. Principal attention will be paid to how American popular culture was perceived in a European context. All readings and discussions in English. Also listed as History C194 and Sociology C189. (F,SP) Staff

178. Cultural Studies. (4) Three hours of lecture/discussion per week. Although the Caribbean has been recognized in recent years as being one of the most compelling areas in regard to questions of interculturality, hybridity, and miscegenation, the Dutch-speaking part of it has somehow been neglected. This course intends to give an opportunity to those who do not necessarily have a command of Dutch language but wish to come to grips with the history of Latin-American and Caribbean history, culture, and literature. Also listed as Spanish C178 and African American Studies C178. (F,SP) Staff

197. Cultural Studies. (3,4) Three hours of lecture/discussion per week. One additional hour of discussion per week. Additional topics in the study of cultural studies. Offerings vary. See departmental descriptions for current topic. All readings and discussions in English. (F,SP) Staff

C179. The Jews of the Low Countries. (3) Three hours of lecture per week. A history of Jewish communities in the Netherlands from early Middle Ages until today. Reflection upon relationships between Catholic or Protestant majorities and the Jewish minority, and between Sephardic and German Jews in Amsterdam.
terdam. Emancipation of the Jews in the Dutch Republic and the kingdom of Belgium. Mechanism of the Judeocide (Shoah) in both countries and a survey of pre- and Jewish life, stressing diversity from Reform Judaism to strict Orthodoxy and vibrant Chassidic community in Antwerp. Also listed as Jewish Studies C179. (F,SP) Albicht

190. Senior Thesis. (4) One two-hour consultation per week. A major research paper in the areas of Dutch literature, culture, or the area of linguistics. Required of all majors. (F,SP) Staff

196. Honors Studies in Dutch. (1-4) Course may be repeated for a maximum of 4 units. Prerequisites: Advanced standing. Supervised independent study and research course for honors students. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. (F,SP) Staff

199. Special Studies in Dutch. (1-4) Course may be repeated for credit. Individual course. Must be taken on a passed/not passed basis. Prerequisites: Overall GPA of 3.0. Enrollment is restricted by regulations in this catalog. (F,SP) Staff

Graduate Courses

250. Graduate Seminar in Cultural Studies. (4) Three hours of seminar per week. Research seminar on selected topics in cultural studies. Offerings vary. See department course descriptions for current topics. (F,SP) Staff

299. Individual Studies in Dutch for Graduate Students. (1-8) Course may be repeated for credit. Individual study. For graduate students engaged in exploration of a restricted field, involving the writing of a research paper. (F,SP) Staff

Health and Medical Sciences Program (School of Public Health)

Program Office: 570 University Hall, (510) 642-5479 jmp.berkeley.edu

Director: John Swartzberg, M.D.

Professor
Thomas Boyle (Emeritus), M.D.

Associate Professor
Jodi Halpern, M.D., Ph.D.

Director and Clinical Professor
John Swartzberg, M.D.

Associate Director and Clinical Professor
Ann Stevens, M.D.

Clinical Professors
Guy Mico, M.D.
Kent Olson, M.D.
Harvey Weinstein, M.D., M.P.H.
Alan Steinbach (Emeritus), M.D., Ph.D.

Associate Clinical Professors
Jeffrey Burack, B.Phil., M.D., M.P.P.
Howard Gruber, M.D.
Claudia Landau, M.D., Ph.D.
Barry Latner, M.D.
BalaRam Pugliandla, M.D.
Karen Sokol-Gutierrez, M.D., M.P.H.

Assistant Clinical Professors
Amin Azzam, M.D., M.A.
John Compagno, M.D.
Maria Corrosa, M.D.
Robert Friedman, M.D.
Kenneth Gartner, M.D.
Bowen Wong, M.D.

Academic Coordinator
Kevin Mack, M.D., M.S.

Lecturers
Harrison Alter, M.S., M.D.
Jennifer Breckler, Ph.D.
Hana Dan-Cohen, Ph.D.
Erik Gaensler, M.D.
Amy Greider, M.D.
Sara Hartley, M.D.

Associate Adjunct Professors
Cotelle Auerswald, M.S., M.D.
Stephen Eyre, Ph.D.
Susan Ivey, M.D., M.H.S.A.
Charles Jette, M.S., Ph.D., C.N.M., M.H.A.
Nidola Prata, M.D., M.Sc.

Assistant Adjunct Professor
Douglas Jutte, M.D., M.P.H.

Adjunct Professor
Eric Stover, M.D.

Program Overview

UC Berkeley-UCSF Joint Medical Program. A five-year program leading to a Master of Science degree in Health and Medical Sciences from UC Berkeley and a M.D. from UCSF. The program’s mission is to produce academic and community leaders in American medicine through an early exposure to public health disciplines, the medical humanities, bioethics, and the social and behavioral sciences. Berkeley awards the master’s degree upon the successful completion of the first three years of work, and UCSF awards the medical degree after successful completion of the fourth and fifth years. The master’s program is coordinated with a case-based preclinical science curriculum during the first three years and requires a minimum of 20 hours of work per week. The student is expected to acquire scholarly expertise in a selected area of interest related to health and mastery of the preclinical clerkships. Students selected for this program must meet the rigorous academic requirements for entrance into medical school and graduate school. The selection process screens for students who have a strong interest in the determinants of human health and disease beyond the purely medical and who seek a collaborative small group process model for learning.

Admissions. Applicants to the UC Berkeley-UCSF Joint Medical Program must be eligible for admission to the University in graduate standing, with an undergraduate division GPA of at least 3.0, along with a bachelor’s degree from an accredited college or university. They must have fulfilled the standard pre-medical requirements and have taken the Medical College Admission Test (instead of the GRE) within three years of application. Admission is coordinated with the School of Medicine at UCSF.

For more detailed information about the UC Berkeley-UCSF Joint Medical Program, call (510) 642-5671 or go to jmp.berkeley.edu/about/jmp_brochure.pdf.

Lower Division Courses

98. Directed Group Study. (1-3) Course may be repeated for credit. Three to nine hours of fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor: freshman/sophomore status. Organized group study on topics selected by Health and Medical Sciences faculty for freshman/sophomore students. (F,SP) Staff

Upper Division Courses

C133. Death, Dying, and Modern Medicine: History and Contemporary Perspectives. (4) Three hours of lecture and one hour of discussion per week. This course will study the end of life—dying and death—from the perspective of medicine and history. It seeks to confront the humanist with the quotidian dilemma of maintaining one’s deep engagement with death more generally. It invites pre-med, pre-law, and public policy students to understand these matters in light of the historical and, more broadly, literary and artistic perspectives of the humanities. It also listed as Undergrad Interdisciplinary Studies C133 and History C191. (SP) Laqueur, Mico

150. Introduction to Aging Issues and Opportunities in Aging Professions. (2) Two hours of lecture per week. Prerequisites: Upper division or graduate standing or consent of instructor. This course will explore current issues in aging from biological, demographic, psycho-social, and policy perspectives. To better prepare the students for future careers in aging, demographic, and policy studies and enrich their understanding of the demographics of the general population of which older adults are becoming a larger and larger percentage; how men and women age differently; the historical context within which aging has been viewed; the physical and mental changes that occur over time. These initial lectures will provide the foundation for the lectures that follow in which professionals present issues—unique to their field—that they encounter in meeting the needs of their elderly clientele. Representative professions will include law, medicine, dentistry, architecture, social welfare, optometry, speech and physical therapy. The importance of an interdisciplinary approach to problem solving will be emphasized as speakers highlight pertinent issues in this population through case study scenarios. By using case studies, we will shift the focus from “the disease” or “condition” to “the person.” Speakers will discuss how they became interested in their respective professions and what opportunities/challenges await a new generation of professionals. Mico, Rothman

190. Special Topics in Health and Medical Sciences. (1-3) Course may be repeated for credit. Three to nine hours of fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Upper division or graduate standing or consent of the instructor. Special topics in health and medical sciences of concern to the instructor and intended to address emergent topics that fall outside of or are more restricted in content than the regular curriculum. An opportunity to investigate compelling topics on a ad hoc basis from the perspective of health and medicine. Intended for advanced undergraduates and graduates in health-related disciplines; open to others as space permits. For topics, see online Schedule of Classes. (F,SP)

197. Field Study in Health and Medical Sciences. (1-3) Course may be repeated for credit. Three to nine hours of fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Field experience relevant to health and medical sciences. Regular individual or joint group meetings with faculty sponsor are required. A final written report or ongoing field notebook is required. One unit of credit represents three hours of work per week on the part of the student. (F,SP) Staff

198. Directed Group Study. (1-3) Course may be repeated for credit. Three to nine hours of fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Graduate standing in Health and Medical Sciences Program, standing in health-related disciplines; open to others as space permits. For topics, see online Schedule of Classes.

Graduate Courses

200. Contextual Integrated Case-Based Curricula. Ten and one-half hours of seminar per week. Prerequisites: Graduate standing in Health and Medical Sciences Joint Medical Program. The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a context-based case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences. (F,SP) Swartzberg, Staff

202A. Clinical Skills. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in Health and Medical Sciences Joint Medical Program. The first course in a six-semester sequence introducing first-year medical students to the skills necessary to obtain a complete medical history, to manage successfully the dynamics of the doctor-patient interaction, and to master interpersonal communication skills required of doctors in a clinical setting. (F,Mico)

202B. Clinical Skills. (2) Three hours of lecture/ laboratory offered alternate weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Grad-
uate standing in Health and Medical Sciences Joint Medical Program. Students learn the cardiovascular, pulmonary, eye, and gastrointestinal exam and practice a complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis with both the preceptor and the faculty instructor. Each student is required to turn in at least five patient write-ups per term. (F) Stevens, Swartzberg

202C. Clinical Skills 3. (2) Three hours of lecture/ laboratory offered alternate weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Grad- uate standing in HMS Joint Medical Program. Students learn the male genito-urinary exam and practice the complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis. Each student is required to turn in at least five patient write-ups per term. (F) Stevens, Swartzberg

202D. Clinical Skills 4. (2) Three hours of lecture/ laboratory offered alternate weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in HMS Joint Medical Program. Students learn the gynecologic exam and practice the complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis. Each student is required to turn in at least five patient write-ups per term. (F) Stevens, Swartzberg

202E. Clinical Skills 5. (2) Three hours of lecture/laboratory offered alternate weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in HMS Joint Medical Program. Students learn the cardiology exam and practice the complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis. Each student is required to turn in at least five patient write-ups per term. (F) Stevens, Swartzberg

202F. Clinical Skills 6. (1) Three hours of lecture/laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in HMS Joint Medical Program. Under supervision, students perform a complete history and physical exam on hospitalized or clinic patients five times during the semester. Students are taught in written and verbal format to the instructor and class. These presentations are critiqued and the tools to effectively present cases are taught. The course runs for the first half of the student’s last semester in the program. Each student is required to turn in three patient write-ups. (F) Stevens, Swartzberg

210. Readers’ Theater—Topics on Medicine in Society. (1) Course may be repeated for credit as topic varies. Three hours of seminar per week for eight weeks. Prerequisites: Graduate standing and consent of instructor. In readers’ theater, texts not written explicitly for the stage are adapted for public performances. Students thus learn actively about a subject by performance of relevant literature and discourse with involved audiences. In this course, selected stories deal with many aspects of medicine in context, e.g., dying, childbirth, aging, living with chronic pain, biomedical ethics, and disparities in care. The stories are presented to audiences such as elders, care-givers, patients, and providers. Micco

211. Narrative and Medicine. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: Graduate standing in health policy, public health sciences or consent of instructor. This course’s goal is to provide a method for medical students to think, write about, and discuss feelings engendered by clinical encounters. Medical students are taught the need to be emotionally detached from patients, yet being emotionally detached does not mean devoid of emotion. This course offers a means to express and analyze those feelings. Also considered is the role of the medical history as “text” which can be written and read from differently, equally valid viewpoints. (F,SP) Micco

240. The Death Course. (2) Two hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This course is intended for medical and graduate students who wish to share their experience in the problem of death. The topic will be explored from various religious, cultural, and personal perspectives through the use of literature, in-class writing and discussion, and occasionally song and music. A 10-15 page paper will be required. Micco

261. Thesis Seminar. (1-2) Two hours of seminar per week. Prerequisites: Graduate standing in Health and Medical Sciences UCB-UCSF Joint Medical Program. A seminar to help joint Medical Program students define a research question, find appropriate mentorship, and design a research project. Summer course introduces research design, methods, and expectations for M.S. research in Health and Medical Sciences. Fall and spring semesters address topics in research; student progress toward M.S. thesis is reviewed and critiqued. Development of research plan, protocol design and implementation, and research findings will be reviewed. Each student takes this course three times in the first year. (F,SP) Auerwals, Staff

298. Directed Group Study. (1-5) Variables. Sections 1-8 to be graded on a satisfactory/unsatisfactory basis. Sections 9-17 may be taken for a grade with department approval. Prerequisites: Graduate standing in Health and Medical Sciences Program or consent of instructor. Group study for graduate students. Intensive examination of health-related topics. (F,SP) Staff

299. Independent Study and Research in Health and Medical Sciences. 1-8 to be graded on a satisfactory/unsatisfactory basis. Course may be repeated for credit. Independent study. One unit of credit represents four hours of student work per week in the regular semester. Prerequisites: Graduate standing in HMS Program or consent of sponsoring HMS faculty member. Independent study, research, and writing in an area related to program of study, sponsored by an approved faculty member and approved by program adviser. (F,SP) Staff

Health Services and Policy Analysis
(School of Public Health, Interdepartmental Graduate Groups)

Department Office: 247C University Hall, (510) 643-6571
Chair: William Dow, Ph.D.

Professors

Associate Professor
William Dow (Director), Ph.D. (Public Health)

Assistant Professors
Ann Keller, Ph.D. (Public Health)

Overview
The Ph.D. Program in Health Services and Policy Analysis is a multidisciplinary curriculum: courses are offered in several departments and schools across campus. Students receive a Ph.D. degree from the Graduate Division of the Berkeley campus. The program is within the academic jurisdiction of the Graduate Council and is administratively located in the Division of Health Policy and Management in the School of Public Health.

The group integrates and applies disciplinary knowledge from the social sciences to the health sciences. Students receive a thorough grounding in research methods and the application of these methods to the analysis of health policy issues. Specialty fields in health economics, political science, and organizational theory are offered. Dissertation research is empirically based and relevant to the provision, financing, and evaluation of health services. For further information, see the department web site at hsph.berkeley.edu.

History
(College of Letters and Science)

Department Office: 3292 Dwinelle Hall, (510) 642-1971
hsph.berkeley.edu

Professors
Anthony Adahmawte, Ph.D. University of Leeds. Late modern Europe, international relations
Margaret L. Anderson, Ph.D. Brown University. Late modern Europe, Germany
Susanna I. Barrows, Ph.D. Yale University. Late modern Europe. France, social, cultural
Andrew Bennett, Ph.D. University of California, Berkeley. East Asia, modern Japan
Mary E. Berry (Chair, Department of History), Ph.D. Harvard University. Japan
Richard Candama Smith, Ph.D. University of California, Los Angeles. U.S. cultural, oral history theory and method
Margaret Cheonwhong, Ph.D. Stanford University, Latin America, Mexico
Jean P. Vries, Ph.D. Yale University. European economics
John Elton, Ph.D. Columbia University. Modern Jewish
Robin L. Einhorn, Ph.D. University of Chicago. 19th-century U.S., urban and political
Susanna K. Elm, Ph.D. Oxford University. Late antiquity, ancient Near East
Paula S. Fass, Ph.D. Columbia University. America since 1607, social and family immigration and education
David Henkin, Ph.D. University of California, Berkeley. 19th-century United States
Carla A. Hesse, Ph.D. Princeton University. Early modern Europe, social and political
David A. Hollinger, Ph.D. University of California, Berkeley. U.S., intellectual
Eugene F. Isichio, Ph.D. University of Chicago. South Asia, modern India
Martin E. Jay, Ph.D. Harvard University. Late modern Europe, intellectual
David G. Johnson, Ph.D. University of California, Berkeley. Early Asia, pre-modern India
Tabitha M. Kang, Ph.D. University of Nairobi. Africa
Genevra F. Kozoll, Ph.D. Stanford University. Medieval Europe, France
Timothy W. Lauer, Ph.D. Princeton University. Britain, social, history of medicine
John E. Lesch, Ph.D. Princeton University. History of science, biology, science policy
Maria Mavroudi, Ph.D. Harvard University. Byzantine studies
Maureen Miller, Ph.D. Harvard University. Medieval Europe, Italy, ecclesiastical
Michael Nolan, Ph.D. Princeton University. East Asia, early China
Peter Sahinis, Ph.D. Princeton University. Early modern Europe, France, Catholics
Yuri Slezkine, Ph.D. University of Texas, Austin. Late modern Europe, Russia
Tyler Sloan, Ph.D. University of Wisconsin-Madison. Late modern Europe, modern France, urban and postcolonial, science and social
James Vernon, Ph.D. Manchester University. Modern Britain
William Yeh, Ph.D. University of California, Berkeley. Modern China, social and cultural
Richard M. Abrams (Emeritus), Ph.D.
Thomas G. Barnes (Emeritus), D. Phil.
Thomas A. Bruns (Emeritus), Ph.D.
Delmar M. Brown (Emeritus), Ph.D.
Gene A. Brucker (Emeritus), Ph.D.
Diane S. Clemens (Emeritus), Ph.D.
*Erich S. Gruen (The Gladys Reid Wood Professor Emeritus), Ph.D.
Samuel Haber (Emeritus), Ph.D.
Roger Hahn (Emeritus), Ph.D.
Tufo Haaspler (Emeritus), Ph.D.
John L. Hellborn (The Class of 1836 Professor of History Emeritus), Ph.D.
Richard Herr (Emeritus), Ph.D.
David N. K teachley (Emeritus), Ph.D.
Ira M. Lapidus (Emeritus), Ph.D.
*Robin R. McKerrow (Emeritus), Ph.D.
1Leon F. Sltvog (The Alexander F. and May T. Morrison Professor of American History Emeritus), Ph.D.
2Henry F. May (Emeritus), Ph.D.
3Thomas F. Metcalfe (Emeritus), Ph.D.
4Robert L. Middeldau (The Paul Otchis Professor of American History Emeritus), Ph.D.
The Department of History offers a program of study in the history of human experience. The chronological, geographical, and topical range affords great flexibility to students working in the field of history and to those who wish to give a historical dimension to their studies in other disciplines. Lecture courses and seminars are available to students at introductory and advanced levels.

**Department Overview**

The Department of History offers a program of instruction ranging widely over the historical record of human experience. The chronological, geographical, and topical range affords great flexibility to students working in the field of history and to those who wish to give a historical dimension to their studies in other disciplines. Lecture courses and seminars are available to students at introductory and advanced levels.

**The Major**

The major in history consists of 12 courses (usually for a total of 49 units), at least 11 of which must be completed within the Department of History. Students may be allowed to include one course from another department in constructing their "fields of concentration" (see below). Individual programs must satisfy both lower and upper division requirements. They must also include at least one course devoted entirely to premodern history (to be selected from courses focused on one or more of the following eras: antiquity, the classical period, and the medieval period; courses dealing solely with the early modern period do not satisfy this requirement).

### Courses satisfying the premodern history requirement:

Students may declare the major after completing three courses in the Department of History, including at least two courses in the lower division.

### Lower Division Requirements

Four courses, to include the following:

- one survey course in the history of the United States;
- one survey course in the history of Europe;
- one survey course in the history of another world area;
- one elective (of any additional offering, including History R1, 2, and 3).

Students may substitute one upper division course for any one of the first three requirements.

### Upper Division Requirements

Eight courses, to include the following: one seminar (History 103); one research seminar (History 101). At least four upper division courses must constitute a field of concentration, which is defined by at least one of the following rubrics:

- a period (such as the ancient world, the medieval world, the 20th century, or a similarly broad temporal span);
- a geographical area (such as Eastern Europe, China, the Mediterranean, or a similarly broad spatial expanse);
- a thematic approach (such as science and medicine, law, popular culture, religion, or a similarly broad subject matter).

The four courses constituting the field of concentration must include History 101. The three additional courses in the field of concentration may include History 103. They may also include one appropriate upper division course (of at least 3 units) from another department. Students must secure approval for their fields of concentration from the Committee on the History Undergraduate Major (CHUM) two semesters before graduation (thus, for example, during the spring of the junior year for majors expecting to graduate the following spring).

While individual majors must define their own particular fields of concentration, CHUM offers the following sample of possible fields to assist students in making their decisions:

#### Fields Defined by Period:

- an era (for example, the ancient period, the medieval period, the early modern period);
- a century (for example, the 13th century, the 18th century, the 19th century);
- an age of transregional connection or crisis (for example, the age of global voyages, the age of revolution in Europe and North America, the age of nation-building in the Middle East);

#### Fields Defined by Geographical Area:

- a national unit (for example, China, France, Kenya, Mexico);
- an empire (for example, the Roman Empire, the Byzantine Empire, the Ottoman Empire, the Spanish Empire, the British Empire, the Japanese Empire);
- a geopolitical region (for example, East Africa, Eastern Europe, Latin America, the Middle East, Southeast Asia);
- a geophysical region (for example, the Atlantic world, the Black Sea, the Indian Ocean, the Mediterranean, the Persian Gulf).

### Undergraduate Honors Program

To graduate with honors in history, a major must achieve a general GPA of 3.3, a departmental GPA of 3.5, and a minimum grade of A- in History 101. To be eligible for graduating with high honors in history, a major must achieve a general GPA of 3.3, a departmental GPA of 3.5, and a grade of A in History 101. The student must also receive a nomination for high honors from the 101 instructor. The decision to award high honors, made in consultation with a second reader of the thesis, rests with the Honors Committee.

To be eligible for graduation with highest honors in history, a major must achieve a general GPA of 3.3, a departmental GPA of 3.7, and a grade of A in History 101. The student must also receive a nomination for highest honors from the 101 instructor. The decision to award highest honors, made in consultation with a second reader of the thesis, rests with the Honors Committee.

A major who is eligible for honors after completing History 101 and is interested in continued research may pursue a second thesis project under the supervision of a second reader.

### Further Information

The online Schedule of Classes issued before each semester and the department course descriptions issued at the beginning of each semester provide further detailed information about the courses offered by the History Department, including when and by whom each course will be given.

#### Lower Division Courses

R1. The Practice of History. (4) Three hours of lecture and two hours of discussion per week. Intended for non-majors as well as prospective majors, this course introduces students to the discipline of history as a historicist inquiry into the experiences of people in time and space. How do historians interpret and debate the past? How do they gather and make use of their materials and sources? Readings include the books of classical historians from different cultural traditions, contemporary historical debates, and an exploration of historical sources available at Berkeley.
109A. The Rise of Islamic Civilization, 600-1200. (4) Three hours of lecture and one hour of discussion per week. A survey of Islamic civilization from the rise of Muhammad to the 12th century. (F,SP)

109B. The Middle East, 1000-1750. (4) Three hours of lecture and one hour of discussion per week. The establishment of Turkish power in the Middle East: Seljuks, Mongols, Ottomans, and Safavids. (FSP)

109C. The Middle East From the 18th Century to the Present. (4) Three hours of lecture and one hour of discussion per week. An overview of the Middle East from the 18th century to the present. (F,SP)

110. The Ottoman Empire, 1400-1750. (4) Three hours of lecture and one hour of discussion per week. The rise and fall of the Ottoman Empire. (F,SP)

111. Topics in the History of Southeast Asia. Three hours of lecture and one hour of voluntary discussion per week. This course focuses on the history of Southeast Asia from the 14th to the 20th century. (F,SP)

111B. Modern Southeast Asia. (4) Three hours of lecture and one hour of discussion per week. Major themes in modern Southeast Asian history include: the rise of nation-states; the impact of European imperialism; and the role of local elites in the process of modernization. (F,SP)

111C. Political and Cultural History of Vietnam. (4) Three hours of lecture and one hour of discussion per week. This course examines the political and cultural history of Vietnam from the early imperial period to the present. (F,SP)

112. Africa. Three hours of lecture and one hour of discussion per week. This course provides an overview of African history from the pre-colonial period to the present. (F,SP)

112A. Africa. Three hours of lecture and one hour of discussion per week. This course focuses on the history of Africa from the 18th to the 20th century. (F,SP)

112B. Modern South Africa, 1652-Present. (4) Three hours of lecture and one hour of discussion per week. This course surveys the history of South Africa from the 17th to the present. (F,SP)

113A. Traditional Korean History. (4) Three hours of lecture and one hour of discussion per week. This course provides an overview of Korean history from the pre-colonial period to the present. (F,SP)

113B. Modern Korean History. (4) Three hours of lecture and one hour of discussion per week. This course focuses on the history of Korea from the 19th to the present. (F,SP)

113C. Modern China. (4) Three hours of lecture and one hour of discussion per week. This course surveys the history of China from the 19th to the present. (F,SP)

114. India. Three hours of lecture and one hour of discussion per week. This course provides an overview of Indian history from the pre-colonial period to the present. (F,SP)

115. The Ancient Mediterranean. 600-1200. (4) Three hours of lecture and one hour of discussion per week. A survey of the ancient Mediterranean from the rise of Alexandria to the fall of the Western Roman Empire. (FSP)

116. China. Three hours of lecture and one hour of discussion per week. This course provides an overview of Chinese history from the pre-colonial period to the present. (F,SP)

116A. Early China. (4) Three hours of lecture and one hour of discussion per week. This course focuses on the history of China from the Zhou Dynasty to the fall of the Han Dynasty. (F,SP)

116B. Two Golden Ages: China During the Tang and Song Dynasties. (4) This course explores the history of China from the Tang Dynasty to the Song Dynasty. (F,SP)

117. Topics in Chinese History. Three hours of lecture and one hour of discussion per week. This course provides an overview of Chinese history from the pre-colonial period to the present. (F,SP)

117C. Reading the Visual in Chinese History. (4) This course focuses on the visual culture of China and how it has been represented in art and literature. (FSP)

118. Japan. Three hours of lecture and one hour of discussion per week. This course provides an overview of Japanese history from the pre-colonial period to the present. (F,SP)

118A. Archaeological Period to 1800. (4) Emphasis on political, cultural, and intellectual history of the Early Imperial State, Japan’s first military governments, early modern, and Meiji Japan. (SP)

118B. 1800-1900. (4) Emphasis on the social and intellectual history of Japan’s pre-war reconstruction. (SP)

118C. Empire and Alienation: The 20th Century in Japan. (4) Japan’s experience of the 20th century, beginning with the development of capitalism and the acquisition of an empire, through the period of rapid economic and social development and the consequences of that growth. (SP)
as a world power. Emphasis on social and intellectual history and on how Japan has understood itself and the world in this century. (F,SP)

119A. Postwar Japan. (4) Three hours of lecture and one hour of discussion per week. This course considers Japan since the end of World War II, beginning with an exploration of the war itself and its complex legacy to the postwar era. Using the best recent scholarship and a selection of translated novels, essays, and poetry along with films, we look at the six postwar decades and the transformations of Japanese life that those years have brought. We try, finally, to answer the question: has "postwar" an end? (F,SP)

120AC. American Environmental and Cultural History. (4) Three hours of lecture and one and one-half hours of discussion per week. Formerly C120. History of the American environment and the ways in which different cultural groups have perceived, used, managed, and conserved it from colonial times to the present. Cultures include American Indians and European and African Americans. Natural resources development includes gathering-hunting-fishing; farming; mining, ranching, forestry, and urbanization. Changes in attitudes and behaviors toward nature and past and present conservation and environmental movements are also examined. Also listed as Environ Sci, Policy, and Planning C120. This course satisfies the American Cultures requirement. (F,SP)

121. The Colonial Period and American Revolution. Three hours of lecture and one hour of discussion per week.

121A. American History, the Colonial Period: The Peoples and Cultures of Early America. (4) America has always been a multicultural society and perhaps at no time was this more true than in the 17th and 18th centuries. In this course, we analyse the experiences of Native-, African-, and European-Americans from about 1500 to 1763. Through the study of the growth of early modern colonization, focusing upon their conflicting and changing gender, religious, social, cultural, economic, and political systems. This course satisfies the American Cultures requirement. (F,SP)

121B. The American Revolution. (4)

122AC. Antebellum America: The Advent of Mass Society. Three hours of lecture and one hour of discussion per week. This course course will take a broad view of the political, social, economic, and cultural history of the United States in the mid-19th century in order to explore both the causes of the Civil War and its effects on American development. Major topics will include slavery and race relations (north and south), class relations and industrialization, the organization of party politics, and changing ideas about and uses of government power. (F,SP)

124. The Recent United States. Three hours of lecture and one hour of discussion per week. This course surveys the history of the American West since 1845. We will pay particular heed to the history and historiography surrounding those aspects of the West that are typically associated with the policy of "Manifest Destiny." We will attempt to portray the nation's role in the national map and a potent metaphor in the national imagination. This course satisfies the American Cultures requirement. (F,SP)

125B. Soul Power: African American History 1861-1980. (4) This course will examine the history of African Americans and ethno-racial relations from the American Revolution through the Civil War; the origins and development of Afro-American society, culture and politics will be explored from the perspective of African-American therapies, slavery, freedom, North and South. Throughout, the enduring dilemma of race relations functions as a central theme. (F,SP)

126A-126B. The American West since 1850. (4) Three hours of lecture and one hour of discussion per week. This course surveys the history of the American West since 1845. We will pay particular heed to the history and historiography surrounding those aspects of the West that are typically associated with the policy of "Manifest Destiny." We will attempt to portray the nation's role in the national map and a potent metaphor in the national imagination. This course satisfies the American Cultures requirement. (F,SP)

127A. California. (4) Three hours of lecture and one hour of discussion per week. Formerly 127. The history of California from pre-European contact to the present, with emphasis on the diversity of cultures and the interplay of social, economic, and political developments. This course satisfies the American Cultures requirement. (F,SP)

128. Liberal Superpower: Reform and Political Economy in Postwar U.S. History. (4) Three hours of lecture and one hour of discussion per week. Formerly 139D. This course will examine the fate of previously important political ideas and ethical institutional configurations under the restructuring regime of the Cold War, in a sense, asking ourselves whether it is a paradox in need of unravelling or an artfully constructed falsehood to describe the post-1945 period as a continuation of the pre-1945 world. (F,SP)

129. Children Through History: Social Practices and Social Welfare. (4) Three hours of lecture and one hour of discussion per week. This course brings together the methods of historical analysis and the problems of those social professionals who are and children and childhood in America. Topics covered will include childhood and infancy, children's rights, learning, and the state of the superparent. A significant research paper is required. Also listed as Undergrad Interdisciplinary Studies C132 and Social Welfare C129. (F,SP) Staff

130. Diplomatic History of the United States. Three hours of lecture and one hour of discussion per week. This course examines the impact on emerging America's foreign policy, colonial, revolutionary, and constitutional periods. Nineteenth century expansionism to imperialism, Spanish-American War and aftermath. This course will begin with John Quincy Adams' doctrine of the Monroe Doctrine and end with the victorious American role in World War I.

130A. The Rising American Empire: From Principle to Spanish-American War. (4)

130B. The United States and the World Since 1919. (4) This course will explore the history of U.S. relations with the external world. It will encompass the political and military interactions that have traditionally constituted "diplomatic history," but it will also engage other types of international encounters. The course will consider, in particular, the great power status; its role in the world wars; U.S. involvement in the Cold War; and Americans' search for an effective foreign policy after Cold War world. (F,SP)

131. Social History of the United States. Three hours of lecture and one hour of discussion per week. This course examines the nature and development of social and economic institutions, class, family and racial relationships, sex roles, and cultural norms in the United States.

131A. Social History of the United States: From Settlement to Civil War. (4)

131B. Creating Modern American Society: From the End of the Civil War to the Global Age. (4) This course examines the transformation of American society since the Civil War. The lectures and readings give special attention to the emergence of city culture and its possibilities for a pluralistic society; the experience and effect of immigration in the 19th and 20th centuries; the revolution in communications and industry; changes in family dynamics, the emergence of modern childhood, schooling, and youth culture; changes in gender relations and sexuality; theories about the making of modern America. We will take care to together the methods of historical analysis and the problems of those social professionals who are concerned with the external world. This course satisfies the American Cultures requirement. (F,SP)

C132B. Intellectual History of the United States since 1865. (4) Students will receive no credit for C132B after taking 132B. Three hours of lecture and one hour of discussion per week. In this course we will be discussing key developments in U.S. thought since the middle of the 19th century, roughly beginning with the opening of the "Door of No Return" in 1865. We will look at how ideas, whether they are dominant, challenging, or look back, have affected the ways in which Americans live together. We will look at how intellectual life has empowered and expanded the capacity of Americans to understand their world and achieve goals more effectively. We will also consider how intellectual theories have contributed to inequality and injustice. Also listed as American Studies C132B.

134. The Age of the City. Three hours of lecture and one hour of discussion per week. (F,SP) Staff

134A. The Age of the City, 1825-1933. (4) For most of human history, urban living has been the experience of a distinct minority. Only in the past two hundred years have the physical spaces, social relations, and lifestyles associated with large cities entered the mainstream. This course will examine the long century of urban living, with a focus on the experiences of those who made the city their home. We will look at how ideas, whether they are dominant, challenging, or look back, have affected the ways in which Americans live together. We will look at how intellectual life has empowered and expanded the capacity of Americans to understand their world and achieve goals more effectively. We will also consider how intellectual theories have contributed to inequality and injustice. Also listed as American Studies C132B.

134B. The Age of the City: The 20th Century to the Present. (4) A cultural and social history of urban life.
The course explores the social, political, cultural, and economic history of women and men’s lives, as well as changing sexual attitudes toward gender, the family and sexuality. Against the tapestry of 20th-century American history, we will analyze how two dramatic changes—women’s entry into the paid labor force and their control over their reproductive lives—gave rise to our contemporary cultural wars over the family, sexuality and reproduction. (F-SP)

137AC. The Repealing of America. (4) Three hours of lecture and one hour of discussion per week. This course examines together of people from five continents to the United States and provides an historical overview of the shifting patterns of immigration. The course begins in the colonial era when servants and slaves typified the immigrant to America. It then follows the migration of the pre-industrial immigrants, through migration streams during the industrial and “post-industrial” eras of the nation. This course satisfies the American Cultures requirement.

138. History of Science in the U.S. (4) Three hours of lecture and one hour of discussion per week. This course examines the scientific history of the U.S. from the colonial period to the present, with a focus on the contentions debates over the place of science within cultural, religious, and social-intellectual institutions of the time. Emphasis is put on the pursuit of scientific knowledge, with special attention to the relationships between science and technology and between science and the state. (F) Carson

139. Topics in United States History. Three hours of lecture and one hour of discussion per week. (F-SP)

139B. The American Immigrant Experience. (4) Three hours of lecture, one hour of self-paced laboratory and one hour of optional discussion section per week. History of science in the U.S. from the colonial period to the present, with a focus on the contentious debates over the place of science within cultural, religious, and social-intellectual institutions of the time. Emphasis is put on the pursuit of scientific knowledge, with special attention to the relationships between science and technology and between science and the state. (F-SP)

139C. Civil Rights and Social Movements in U.S. History. (4) Three hours of lecture and one hour of discussion per week. Beginning with the onset of World War II, America experienced not a singular, unitary Civil Rights Movement—as is typically portrayed in standard textbook accounts and the collective memory—but rather a variety of contemporaneous civil rights and their related social movements. This course explores the history, presenting a top-down (political and legal history), bottom-up (social and cultural history), and comparative (by race and ethnicity as well as region) view of America’s struggles for racial equality in roughly the 1950s and 1960s and the results of the Civil Rights Movement. A final examination and a final project are required. (F-SP)

140. America: From Conquest to Independence. (4) Three hours of lecture and one hour of discussion per week. This course will survey the history of America from the pre-conquest period to the present, with an eye to the study of Mexican history and the development of nations and states in Latin America from the 16th century to the present. Topics include the history of the American Revolution, the rise of the United States as a “liberal superpower.” (F-SP)

140B. Modern Mexico. (4) This course surveys Mexican history from the end of the colonial period to the present, with an eye to the study of Mexican history and the development of nations and states in Latin America from the 16th century to the present. Topics include the history of the American Revolution, the rise of the United States as a “liberal superpower.” (F-SP)

141. Social History of Latin America. Three hours of lecture and one hour of discussion per week. (F-SP)

142. Modern Latin America: 1945-1992. (4) Three hours of lecture and one hour of discussion per week. This course will examine the social history of Latin America from the 1945-1992 period, focusing on the impact of the Cold War, the economic and political changes in the region, and the role of Latin American countries in the world economy.

143. Brazil. (4) Three hours of lecture and one hour of discussion per week. From 16th-century conquest and settlement to the emergence of an industrial economy during the 19th century, the course examines Brazilian society, culture, and politics, with a focus on Brazil’s role in the Atlantic slave trade and its impact on Brazilian society.

144. Latin American Women. (4) Three hours of lecture and one hour of discussion per week. This course examines the experiences and impact of women in Latin America from the pre-Columbian period to the present. It explores the role of women in the political, economic, and social development of Latin America.

145. Great Britain and the Cold War. (4) Three hours of lecture and one hour of discussion per week. From 16th-century conquest and settlement to the emergence of an industrial economy during the 19th century, the course examines British society, culture, and politics, with a focus on Britain’s role in the Atlantic slave trade and its impact on British society.

146. German Immigrant Experience. (4) Three hours of lecture and one hour of discussion per week. This course examines the experiences of German immigrants to the United States from the 18th century to the present. It explores the role of German immigration in shaping American culture and society.

147. British Immigrant Experience. (4) Three hours of lecture and one hour of discussion per week. This course examines the experiences of British immigrants to the United States from the 18th century to the present. It explores the role of British immigration in shaping American culture and society.

148. Science and Technology in Modern America. (4) Three hours of lecture and one hour of discussion per week. This course examines the role of science and technology in shaping American society and culture from the 19th century to the present.

149. Modern Latin America: Brazil. (4) Three hours of lecture and one hour of discussion per week. This course examines the political, economic, and social history of Brazil from the 1945-1992 period, focusing on the role of Brazil in the Atlantic slave trade and its impact on Brazilian society.

150. Medieval England. Three hours of lecture and one hour of discussion per week. This course examines the political, economic, and social history of England from the 12th to the 16th century, with a focus on the medieval period, including the impact of the Black Death, the rise of the University of Oxford, and the development of the English legal system.

151. Britain, 1660-1851. (4) This is a course about the history of Britain that asks why this small island nation was so central to how Europeans and others understood world history more generally. It looks at Britain as the paradigmatic venue of industrialization, mass culture and its control over their reproductive lives—gave rise to our contemporary cultural wars over the family, sexuality and reproduction. (F-SP)
158. Modern Europe. Three hours of lecture and one hour of discussion per week. (F,SP)

159. European Economic History. Three hours of lecture and one hour of discussion per week. (F,SP)

160. The International Economy of the 20th Century. (F,SP) Three hours of lecture and one hour of discussion per week. (F,SP)

161. Emergence of Modern Industrial Societies. (F,SP) Four hours of lecture per week. Survey of the development of the modern political economies of the United States, Europe, and Japan; evolution and interaction of the major institutions of advanced capitalist societies; differences and similarities of their business communities, labor organization, and patterns of government relationships with the private sector.

162A. Europe and the World: Wars, Empires, Nationalism, and International Relations. Three hours of lecture and one hour of discussion per week. This upper division course looks at the rise and fall of the European great powers from the Peace of Westphalia, traditionally perceived as the beginning of the modern states system, to the coming of the First World War, an era of state and empire building. Economic and technological trends are naturally part of the story as well as cultural, social, and political forces. At the same time, the course highlights the decisive influence of the shakers and movers—kings, emperors, and generals.

162B. War and Peace: International Relations since 1914. (F,SP) Three hours of lecture and one hour of discussion per week. This upper division course analyzes the turbulent transitions from the classical European balance of power system to the global multipolar system of today. The course explores the political, economic, ideological, and technological roots of international affairs. Among topics discussed are: the two world wars, inter-war collective security, the Cold War, European integration, imperialism and de-colonization, the collapse of Communism, the Middle East conflict, the rise of China and Japan, and the post-1990 international order.

163. Modern European Intellectual History. Three hours of lecture and one hour of discussion per week.

Thought and art considered in their social and political contexts.

163A. European Intellectual History from the Enlightenment to 1870. (F,SP) Three hours of lecture and one hour of discussion per week. This upper division course will examine the major figures and themes in the intellectual development of the modern world. The period covered includes much of the Enlightenment, the French Revolution, and the European expansion into the Americas. Students will be required to write several research papers. The course is demanding, and we will also try to make sense of the different ways that historians disagree about the meaning of what happened.

163B. European Intellectual History, 1870 to the Present. (F,SP) Three hours of lecture and one hour of discussion per week. This upper division course will examine the major figures and themes in the intellectual development of the modern world. The period covered includes much of the Enlightenment, the French Revolution, and the European expansion into the Americas. Students will be required to write several research papers. The course is demanding, and we will also try to make sense of the different ways that historians disagree about the meaning of what happened.

164. Social History of Western Europe. Three hours of lecture and one hour of discussion per week. (F,SP)

165. Topics in Modern European History. Three hours of lecture and one hour of discussion per week. (F,SP)

166. Modern France. Three hours of lecture and one hour of discussion per week. (F,SP)

166B. Old Regime and Revolutionary France. (F,SP) Three hours of lecture and one hour of discussion per week. This upper division course will examine the socio-economic and political factors that allowed France to emerge as one of the most powerful nation in Europe at the end of the 18th century. We will examine the role of the Enlightenment, the French Revolution, and the rise of the modern state.

166C. Modern France. (F,SP) Three hours of lecture and one hour of discussion per week. (F,SP)

167. Modern Germany. Three hours of lecture and one hour of discussion per week. (F,SP)

167A. Early Modern Germany. (F,SP) Three hours of lecture and one hour of discussion per week. This upper division course will examine the political, economic, and social developments in Germany from the 16th century to the 18th century. Students will be required to write several research papers. The course is demanding, and we will also try to make sense of the different ways that historians disagree about the meaning of what happened.

167B. The Rise and Fall of the Second Reich: Germany 1770-1918. (F,SP) Three hours of lecture and one hour of discussion per week. (F,SP)

168. Spain and Portugal. Three hours of lecture and one hour of discussion per week. (F,SP)
state and society; Russia versus Soviet; Gorbachev versus the past.

172. Russian Intellectual History. (4) Three hours of lecture and one hour of discussion per week. This course introduces students to Russian intellectual history from the end of the 19th century to the beginning of the 20th century, covering aspects of political, social, and religious thought. We will observe Russian thinkers elaborate conceptions of nationalism in a multi-ethnic empire and the eternal struggle for Russia's national identity: whether it belongs to the East or West? Next, we will move on to social thought, including debates on serfdom, populism, the "women question," and the rise of Marxism. Finally, we will study debates on religion: the persistence of Orthodox Christian faith in social and philosophical thought, including early 20th century religious thought.

173. History of Eastern Europe. Three hours of lecture and one hour of discussion per week. Beginning with the end of Communist hegemony in Eastern Europe, understood as the band of countries and peoples stretching from the Baltics to the Balkans. Poland, Czechoslovakia, and Hungary, however, will receive special attention. Topics of study will include: foundation of the national states, Eastern European fascism, Nazi occupation, constructivist socialism, the fate of reform communism, reconstruction of a "national" society, and the emergence of a new Eastern Europe. Given the paucity of historical writings on the region, the course will make extensive use of cinematic and literary portrayals of Eastern Europe.

174. Topics in the History of Eastern Europe. Three hours of lecture and one hour of discussion per week. (F,SP)

174A. A History of Poland-Lithuania. (4) The course will focus on the development of identities within the constantly shifting borders of Polish-Lithuanian and Polish states. Among the topics: competing definitions—ethnic, confessional, linguistic, political—of Polishness; continuities and discontinuities in Polish history and historiography; Poland between East and West; the development of Polish self-perceptions; Jewish, Lithuanian, and Ukrainian identities in the Polish context; the Polish chapter in the events leading to the end of Communist hegemony in Eastern Europe. (F,SP)

174B. Poles and Others: the Making of Modern Poland. (4) This course examines the dilemmas of historical and political identity as they continue to define the consciousness of the citizens of the almost completely destroyed country. This course is divided into two main parts: (1) the historical background up to 1939; and (2) the destruction of European Jewry, 1939-1945. (SP)

177A. Armenia from Ethnogenesis to the Dark Ages. (4) This course will cover to three millennia of Armenian history, from the process of ethnogenesis to the almost complete destruction of the Armenian "feudal" system by the end of the 15th century. This course is based on the broad framework of Armenian political history and institutions, but also emphasizes economic development, social change, and cultural transformations. (F,SP)

177B. From Pre-modern Empires to the Present. (4) This course will cover the Persian Empire and the Mongol Empire as a result of its dealings with the "outside" world, and how these crises were resolved. The course is based on the study of primary sources and will include problems of historical method. (SP)

178A. History of Christianity to 1250. (4) This course follows 185A as the second of two semesters on the History of Christianity. It deals with the origins of Christianity and the first eleven centuries of its expansion into a major institutional, social, and intellectual force shaping Western Europe. The central themes are the mechanisms and conditions shaping this expansion, rather than a chronological account in order to present this process as a model of institutionalization of religious movements. The emphasis will be on patterns of crisis and reform; issues of the conflicts arising within Christianity as a result of its dealings with the "outside" world, and how these crises were resolved. The course is based on the study of primary sources and will include problems of historical method. (F,SP)

178B. History of Christianity from 1250. (4) This course will cover the period of European history since the late Middle Ages, including the intellectual, political, and religious innovations that accompany the formation of modern European states. Among the topics: competing definitions of non-European Jewish narratives alongside the more familiar Ashkenazi perspective. Also listed as Undergrad Interdisciplinary Studies C155 and Religious Studies C135, Staff

C176. Multicultural Europe. (4) Three hours of lecture per week. (F,SP) This course will trace the subtle changes and transformations taking place in contemporary Europe in the areas of culture, society, and politics. In particular, we will look at the effects of massive migration flows—due to globalization processes—on the national culture of the core processes and examine the ways in which particular national cultures react to the increasing multiculturalization of Europe. The goal of the course is, first of all, to familiarize students with a variety of cultural, social, and political innovations that accompany the formation of modern Europe. Among the topics: competing definitions of non-European Jewish narratives alongside the more familiar Ashkenazi perspective. Also listed as Undergrad Interdisciplinary Studies C155 and Religious Studies C135, Staff

177. The Habsburg Empire, 1740-1918. (4)

173C. History of Eastern Europe: From 1900 to the Present. (4) This course will examine the history of 20th-century Eastern Europe, understood as the band of countries and peoples stretching from the Baltics to the Balkans. Poland, Czechoslovakia, and Hungary, however, will receive special attention. Topics of study will include: foundation of the national states, Eastern European fascism, Nazi occupation, constructivist socialism, the fate of reform communism, reconstruction of a "national" society, and the emergence of a new Eastern Europe. Given the paucity of historical writings on the region, the course will make extensive use of cinematic and literary portrayals of Eastern Europe.

174. Topics in the History of Eastern Europe. Three hours of lecture and one hour of discussion per week. (F,SP)

174A. A History of Poland-Lithuania. (4) The course will focus on the development of identities within the constantly shifting borders of Polish-Lithuanian and Polish states. Among the topics: competing definitions—ethnic, confessional, linguistic, political—of Polishness; continuities and discontinuities in Polish history and historiography; Poland between East and West; the development of Polish self-perceptions; Jewish, Lithuanian, and Ukrainian identities in the Polish context; the Polish chapter in the events leading to the end of Communist hegemony in Eastern Europe. (F,SP)

174B. Poles and Others: the Making of Modern Poland. (4) This course examines the dilemmas of historical and political identity as they continue to define the consciousness of the citizens of the almost completely destroyed country. This course is divided into two main parts: (1) the historical background up to 1939; and (2) the destruction of European Jewry, 1939-1945. (SP)

177A. Armenia from Ethnogenesis to the Dark Ages. (4) This course will cover to three millennia of Armenian history, from the process of ethnogenesis to the almost complete destruction of the Armenian "feudal" system by the end of the 15th century. This course is based on the broad framework of Armenian political history and institutions, but also emphasizes economic development, social change, and cultural transformations. (F,SP)

177B. From Pre-modern Empires to the Present. (4) This course survey will cover the period from the incorporation of most of the Armenian plateau into the Ottoman Empire to the present day. (F,SP)

178A. History of Christianity to 1250. (4) This course follows 185A as the second of two semesters on the History of Christianity. It deals with the origins of principally Western Christianity between the High Middle Ages and the present in Europe and in the rest of the world. The course’s main theme is the encounter of cultures. Its core readings range from Thomas a Kempis, Martin Luther, and St. Teresa of Avila to Simone Weil and Dietrich Bonhoeffer. The lectures will treat social, cultural, and intellectual topics, such as ecclesiastical authority institutions, forms of piety, revivalism, evangelization, theological speculation, Biblical scholarship, and philosophical arguments for and against religion. This introductory course presupposes no previous study of the subject, though almost any previous study of history or religion should be helpful.

C191. Death, Dying, and Modern Medicine: History and Contemporary Perspectives. (4) Three hours of lecture per week. This course will study the end of life—dying and death—from the perspective of medicine and history. It seeks to confront the humanist with the quotidian dilemmas of modern clinical practice and medicine’s deep engagement with death more generally. It invites pre-med, pre-law, and public policy students to understand these matters in light of the historical and, more broadly, literary and artistic per- spectives of the humanities. Also listed as Undergrad Interdisciplinary Studies C133 and Health and Medical Sciences C133. (SP) Laqueur, Mccro

C192. History of information. (3) Three hours of lecture per week. This course will cover the history of information and associated technologies, uncovering why we think of ours as "the information age." We will select moments in the evolutionary journey of information, reading, and storage from the earliest written systems to the world of Short Message Service (SMS) and blogs. In every instance, we’ll be concerned with both what and why, and we will keep returning to the question of technological determinism: how do technol- ogies and software affect society and vice versa? Also listed as Media Studies C104C, Information C103, and Cognitive Science C103. (F,SP) Duguid, Nunberg

C193. Rhetoric, Culture, and Society. (4) Three hours of lecture per week. (PREREQUISITES: Rhetoric 10
C196W. Special Field Research. (10.5) Course may be repeated for a maximum of 12 units. 240-300 hours of work per semester plus regular meetings with the faculty supervisor. Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser. Also listed as the course consisting of at least 35 pages. Other progress reports for their faculty coordinator during pre-enrollment week each semester.

H195. Senior Honors. (4) Independent. Prerequisites: Senior honors standing. Limited to senior honors candidates. Directed study centering upon the preparation of an honors thesis. Supervisors will be assigned to each student after consultation with the honors committee.

Course may be repeated for credit. Indepen- dent. Must be taken on a passed/not passed basis. Prerequisites: Enrollment is restricted by regulations. (F,SP)

Graduate Courses

200X. Special Topics: Short Course. (2) Course may be repeated for credit. Four hours of lecture/ seminar per week. A four-week long course permitting the instructor to cover in-depth a topic of particular interest. Topics and instructors vary; consult department catalog for details.

275C. Latin America. (4)

275S. History of Science. (4)

280. Advanced Studies: Sources/General Literature of the Several Fields. Course may be repeated for credit. Three hours of seminar per week. To provide a broad survey of the literature and historiographical problems of the different fields in history.

280A. Ancient. (4)

280B. Europe. (4)

280C. England. (4)

280D. United States. (4)

280E. Latin America. (4)

280F. Asia (For M.A. Candidates). (4)

280G. Asia (For Ph. D. Candidates). (4)

280H. Africa. (4)

280N. Canada. (4)

280S. History of Science. (4)

280U. Studies in Comparative History. (4)

281. Paleography and Other Auxiliary Sciences. (4) Course may be repeated for credit with different instructor. Three hours of seminar per week. Introduction to the scholarly handling of texts, whether ancient or modern, inscriptions or manuscripts, and instruction in the methodologies, tools, sources, and the editing and use of texts relevant to a particular field of history; instruction in any auxiliary science required for historical research.

283. Historical Method and Theory. (4) Three hours of seminar per week. Designed especially for candidates for higher degrees in history. Stress is laid on practical exercises. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

285. Research Seminars. Three hours of seminar per week. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

285A. Ancient. (4)

285B. Europe. (4)

285C. England. (4)

285D. United States. (4)

285E. Latin America. (4)

285F. Asia. (4)

285H. Africa. (4)

285L. Legal History. (4)

285S. History of Science. (4)

285U. Studies in Comparative History. (4)

290. Historical Colloquium. (1) Course may be repeated for credit. Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Colloquium on topics of current research. For precise schedule of offerings, see department catalog during pre-enrollment week each semester. (F,SP)

295. Supervised Research Colloquium. (2-5) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Consent of instructor. Preparation, presentation and criticism of research papers.

296. Directed Dissertation Research. (3-12) Course may be repeated for credit. Independent. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor and (2) to introduce students to techniques of design and analysis of optimization algorithms. (F,SP)

298. Independent Study for Graduate Students in History. (2-12) Course may be repeated for credit. Independent. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual conferences to be arranged. Intended to provide directed reading in subject matter not covered in scheduled seminar offerings. (F,SP)

299. Individual Study for Graduate Students in History. (2-12) Course may be repeated for credit. Independent. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual conferences to be arranged. Intended to provide directed reading in subject matter not covered in scheduled seminar offerings. (F,SP)

Professional Courses

300. Teaching History at the University. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This class will introduce graduate students to a variety of techniques and the- ories used in teaching history at the university level. It will examine readings dealing with a range of class- room situations, opportunities, and challenges, with the goal of enabling future college teachers of history to understand the learning process of their students and to develop and improve their own teaching skills. The course will have two primary goals: (1) to train graduate students to work more effectively as gradu- ate student instructors in history classes at Berkeley; and (2) to introduce students to techniques of design- ing and running their own classes that they will use when they become independent instructors and, ulti- mately, professors of history in their own right. (F,SP)
mization, stochastic systems, reliability, and engineering economics often form the basis for operations research studies. Industrial engineering frequently uses knowledge of product design, human machine systems, incentives, organizational behavior, and automation in the design and improvement of goal-seeking systems. These methods may be applied to a variety of human activities in both public and private sectors, including manufacturing, banking, health care, communications, waste management, transportation, and logistics.

For more information, see the College of Engineering announcement. Undergraduate and Graduate Study at coe.berkeley.edu/college-of-engineering-announcement.

Undergraduate Program

Undergraduates in the Department of Industrial Engineering and Operations Research receive broad training in engineering fundamentals, principles of economics and advanced mathematics and statistics in order to prepare them for elective sequences which stress the construction of systems models, the role of the human being in these systems, and the related mathematical and computer methods of optimization. Attendance in this core program is offered both for students who wish to pursue the professional aspects of the field, and for those who, after further education at the graduate level, wish to engage in teaching and research. In order to satisfy the needs of students with diverse objectives, considerable flexibility in planning individual programs is provided.

The B.S. program is accredited in industrial engineering and operations research by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD, 21202-4012; phone: (410) 347-7700.

Students interested in industrial engineering and operations research may also be interested in the operations research and management science major in the College of Letters & Science. See the “Operations Research and Management Science” section of this catalog for more information.

Curriculum and Requirements for the Bachelor’s Degree

Students must complete a minimum of 120 units, in which they must satisfy the University of California and the department’s requirements as outlined in this catalog. Students must complete the requirements for the College of Engineering and the industrial engineering and operations research program. Full details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement.

Graduate Programs

Graduate programs are offered leading to the M.S., M.Eng., Ph.D., or D.Eng. The programs have been developed to meet the needs of individuals with backgrounds in engineering or the mathematical sciences who wish to enhance their knowledge of the theory, development, and use of quantitative models for the analysis, design, and organization of complex systems in the industrial, service, or public sectors. Students may concentrate on theoretical studies in preparation for doctoral-level research, or on applications of state-of-the-art techniques to real word problems.

Undergraduates from scientific disciplines other than engineering may be accepted into these programs. A master’s degree may be earned by thesis or by comprehensive examination. Doctoral degrees require oral examination in the major and two minor fields followed by submission of a thesis demonstrating ability to conduct independent research. Several computing laboratories, as well as a robotics laboratory, are available for graduate research.

The department requires all graduate applicants to submit scores of the Graduate Record Examination (GRE). Further information on graduate programs may be obtained from the Industrial Engineering and Operations Research Office, 4141 Etchevery Hall, Berkeley, CA 94720-1777, and in the College of Engineering Announcement.

Note: In addition to the courses listed in the IOR section of this catalog, the Department of Industrial Engineering and Operations Research offers the following courses in the “Engineering” section of this catalog: Engineering 120, Principles of Engineering Economics.

Lower Division Courses

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Section 1 to be graded on a letter-grade basis. Section 2 to be graded on a pass/no pass basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore advanced level topics in a small seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/no pass basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in a number of campus departments and topics vary from department to department and from semester to semester. (F,SP Ross

150. Production Systems Analysis. (3) Three hours of lecture per week. Prerequisites: 161, 162, or 165. Focus on applications in manufacturing engineering. Quantitative models for operational and tactical decision-making in production systems, including production planning, inventory control, scheduling, and quality control. Major topics in the course include design of service processes, layout and location of service facilities, demand forecasting, demand management, employment scheduling, service quality management, and capacity planning. (SP Staff

153. Logistics Network Design and Supply Chain Management. (3) Three hours of lecture per week. Prerequisites: 160, 162 or senior standing. We will focus primarily on both quantitative and qualitative issues which arise in the integrated design and management of the entire logistics network. Models and solution techniques for facility location and logistics network design will be considered. In addition, qualitative issues in distribution network structuring, centralized versus decentralized network control, variability in the supply chain, strategic partnerships, and product design for logistics will be considered through discussion and cases. (F,SP Staff

160. Operations Research I. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 35 and 54. Deterministic methods and models in operations research. Unconstrained and constrained optimization. Feasibility, inequality, and integer constraints. Sequential decision processes; dynamic programming. Resource allocation, equipment replacement, inventory control, production planning. (F,SP Alamal


162. Linear Programming. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 35 and 54. Formulation to linear programming, simplex method and dual problems, sensitivity analysis, optimal allocation in mass production, and applications in industrial and environmental studies. Convex sets; properties of optimal solutions. The simplex method; theorems of duality; complementary slackness. Problems of network flows, computer programs, network problems. Digital computation. (F,SP
165. Engineering Statistics, Quality Control, and Forecasting. (3) Three hours of lecture per week. Prerequisites: 122 or Statistics 134 or an equivalent course in basic statistics. This course will use cases and data to teach students to basic statistical techniques such as parameter estimation, hypothesis testing, regression analysis, analysis of variance, design of experiments, and non-parametric statistics. Application of these statistical techniques to data analysis problems in engineering and manufacturing systems will be the main focus of this course. Specific applications in forecasting will be considered in detail. Forecasts based on moving average, exponential smoothing, and regression analysis will be studied. Quality and process control using x-bar, moving average, cumulative sum, and range charts will be discussed. (SP) Shankman

166. Decision Analysis. (3) Three hours of lecture per week. Prerequisites: 122 or Statistics 134. Introductory course on the theory and applications of decision analysis. Elective course that provides a systematic evaluation of decision-making problems under uncertainty. Emphasis on the formulation, analysis, and use of decision-making techniques in engineering, operations research and systems analysis. Includes forward-looking and forecast planning, and computer-assisted decision making. Graphical methods and computer software using event trees, decision trees, and influence diagrams that focus on model design. (SP) Oren

170. Industrial Design and Human Factors. (3) Three hours of lecture per week. Prerequisites: Upper division standing. Course surveys topics concerned with the design of products and interfaces ranging from alarm clocks, cell phones, and databases to logos, presentations, and web sites. Design of such systems requires familiarity with human factors and ergonomics, including the physics and perception of color, sound, and touch, as well as familiarity with case studies and contemporary practices in interface design and usability testing. Mathematics will solve a series of design problems individually and in teams. (SP) Goldberg

171. Introduction to Design of Human Work Systems and Organizations. (3) Students will receive no credit for 171 after taking Undergraduate Business Administration 105. Three hours of lecture per week. Prerequisites: Upper division standing. Course surveys topics concerned with the design of products and interfaces ranging from alarm clocks, cell phones, and databases to logos, presentations, and web sites. Design of such systems requires familiarity with human factors and ergonomics, including the physics and perception of color, sound, and touch, as well as familiarity with case studies and contemporary practices in interface design and usability testing. Mathematics will solve a series of design problems individually and in teams. (SP) Goldberg

172. Probability and Risk Analysis for Engineers. (3) Students will receive no credit for 172 after taking Statistics 134. Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 1A-1B or 16A-16B. This is an introductory probability course for students in engineering. It focuses mostly on random variables and their applications. Applications will be given in such areas as reliability theory, risk theory, inventory theory, failure models, stress models, computer science, and others. Note: This course can not be used to fulfill any engineering unit or elective requirements; this is a statistics course and can only be used to fulfill a statistics requirement. (F,SP) Staff

180. Senior Project. (4) One hour of lecture, one hour of consultation with faculty adviser, and six hours of company visitation per week. Prerequisites: 131, 160, 161, 162, 165, Engineering 120, 190, and three other Industrial Engineering and Operations Research electives. This course is a capstone systems analysis project in industrial engineering to the analysis, planning, and/or design of industrial, service, and government systems. Consideration of technical and economic aspects of systems design and process design problems. Students will work in teams under faculty supervision. Topics vary yearly. (F,SP) Staff

190. Advanced Topics in Industrial Engineering and Operations Research. Course may be repeated for credit. One to four hours of seminar per week. Prerequisites: Consent of instructor. The 190 series covers current topics of research interest in industrial engineering and operations research. The course content may change from year to year in conjunction with the development of the department for current term topics. The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise). (F,SP) Staff

190B. Entrepreneurial Marketing and Finance. (1-4) (F,SP) Staff

190E. Entrepreneurship and Innovation. (1-4) (F,SP) Staff

H196A-H196B. Operations Research and Management Science Honors Thesis. (3,3) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Open only to students in the honors program. Individual study and research for at least one academic year on a special problem approved by a member of the faculty; preparation of the thesis on broader aspects of this work. (F,SP) Staff

198. Directed Group Studies for Advanced Undergraduates. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and advisor. Supervised independent study. Enrollment restrictions apply. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and major advisor. Supervised independent study. Enrollment restrictions apply. (F,SP) Staff

Graduate Courses

215. Analysis and Design of Databases. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: Graduate standing. Advanced topics in information management, focusing on design of relational databases, querying, and normalization. New issues raised by the World Wide Web. Research projects on current topics in information technology. (F) Goldberg

215A. Analysis and Design of Databases. (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: Graduate standing or consent of instructor. Advanced topics in information management, focusing on design of relational databases, querying, and normalization. New issues raised by the World Wide Web. Research projects on current topics in information technology. Also listed as Information C258. (F,SP) Goldberg

221. Introduction to Financial Engineering. (3) Three hours of lecture per week. Prerequisites: 162 or 262A, course in probability, or consent of instructor. A course in financial concepts useful for engineers that will cover, among other topics, those of interest rates, present values, arbitrage, geometric Brownian motion, options pricing, and portfolio optimization. The Black-Scholes option-pricing formula will be derived and studied. Stochastic simulation ideas will be introduced and used to obtain the risk-neutral geometric Brownian motion values for certain types of Asian, barrier, and lookback options. Portfolio optimization problems will be considered both from a mean-variance and present values, arbitrage, geometric Brownian motion, options pricing, and portfolio optimization. The Black-Scholes option-pricing formula will be derived and studied. Stochastic simulation ideas will be introduced and used to obtain the risk-neutral geometric Brownian motion values for certain types of Asian, barrier, and lookback options. Portfolio optimization problems will be considered both from a mean-variance and from a utility function point of view. Methods for evaluating real options will be presented. The use of mathematical optimization models as a framework for analyzing financial engineering problems will be shown. (F) Adler, Oren, Ross

250. Introduction to Production Planning and Logistics Models. (3) Three hours of lecture per week. Prerequisites: 262A and 262A taken concurrently. This will be an introductory first-year graduate course on experimental models in production planning and logistics. Models, algorithms, and analytical techniques for inventory control, production scheduling, production planning, facility location and logistics networks will be studied. Project demand forecasting will be discussed. (F) Kaminsky

251. Facilities Design and Logistics. (3) Three hours of lecture per week. Prerequisites: 262A, and either 172 or Statistics 134. Design and analysis of models and algorithms for facility location, vehicle routing, and facility layout problems. Emphasis will be placed on the use of combinatorial analysis of models and algorithms. (SP) Kaminsky

253. Supply Chain Operation and Management. (3) Course may be repeated for credit. Three hours of lecture per week. Supply chain analysis is the study of quantitative models that characterize various economic trade-offs in the design of supply chains. The field has made significant strides on both theoretical and practical fronts. On the theoretical front, supply chain analysis inspires new research ventures that blend operations research, game theory, and microeconomics. These ventures result in an unprecedented amalgamation of prescriptive, descriptive, and predictive models characteristic of each subfield. On the practical front, supply chain design and foundation for strategic positioning, policy setting, and decision making. (F,SP) Shen

254. Production and Inventory Systems. (3) Hours of lecture per week. Prerequisites: 262A or 150; 263A or 161 recommended. Mathematical and computer methods for design, planning, scheduling, and control in manufacturing and distribution systems. (SP) Staff

261. Experimental with Simulated Systems. (3) Three hours of lecture per week. Prerequisites: 263A or 161. This course will introduce graduate and upper division undergraduate students to modern methods for simulating discrete event models of complex stochastic systems. About a third of the course will be devoted to system modeling, with the remaining two-thirds concentrating on simulation experimental design and analysis. (F,SP) Ross, Schruben, Shanthikumar

262A. Mathematical Programming I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 109 or equivalent. This course is an introduction to linear programming and introduction to network flows and nonlinear programming. Formulation and model building. The simplex method and its variants. Duality and sensitivity analysis. Genetic programming, convergence (theoretical and practical), Polynomial time algorithms. Introduction to network flow models. Optimality conditions for non linear optimization problems. (F) Adler, Oren

262B. Mathematical Programming II. (3) Three hours of lecture per week. Prerequisites: Math 110 or equivalent. Basic first year graduate course in optimization of nonlinear programs. Formulation and model building. Theory of optimization for constrained and unconstrained problems. Subgradient and nonlinear optimization with emphasis on design considerations and performance evaluation. (SP) Adler, Oren

263A. Applied Stochastic Process I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 172, or Statistics 134 or Statistics 200A. Conditional Expectation. Poisson and renewal processes. Renewal reward processes with application to inventory, congestion, and replacement models. Discrete and continuous time Markov chains; with applications to various stochastic models such as exponential and Poissonian queuing systems, inventory models and reliability systems. (F) Ross, Shanthikumar


264. Computational Optimization. (3) Three hours of lecture per week. Prerequisites: 262A. This course is on computational methods for the solution of large scale optimization problems. The focus is on convex optimization theory of linear and nonlinear computational techniques. Course topics include an introduction to polyhedral theory, cutting plane methods, relaxation, decomposition and heuristic approaches for large scale optimization problems. (SP) Atamturk
306 / Industrial Engineering and Operations Research

266. Network Flows and Graphs. (3) Three hours of lecture per week. Prerequisites: 262A (may be taken concurrently). Survey of solution techniques and problems that have formulations in terms of flows in networks. Max-flow min-cut theorem. Minimum cost flows. Multiterminal and multicommodity flows. Relationship with linear programming, transportation problems, and shortest path algorithms. (SP) Adler, Hochbaum


268. Applied Dynamic Programming. (3) Three hours of lecture per week. Prerequisites: Mathematics 51. Dynamic programming formulation of deterministic decision process problems, analytical and computational methods of solution, application to problems of equipment replacement, resource allocation, scheduling, search and routing. (F,SP) Dreyfus

269. Integer Programming and Combinatorial Optimization. (3) Three hours of lecture per week. Prerequisites: 262A. The course deals with discrete optimization problems and their complexity. These topics include complexity analysis of algorithms and its drawbacks; solving a system of linear integer equations and inequalities; strongly polynomial algorithms, network flow problems (including matching and branching), linear programming, optimization; branch and bound and lagrangean relaxation. Hochbaum

280. Systems Analysis and Design Project. (3) Three hours of lecture per week. Prerequisites: 262A, 263A. A project course for students interested in applications of mathematical and engineering methods. One or more systems, which may be public or in the private sector, will be selected for detailed analysis and re-designed by student groups. (F,SP) Staff


290C. Statistical Aspects of Discrete Event Simulation. (2) Two hours of lecture per week. Prerequisites: 263A and Statistics 200B, or equivalent. Statistical design and analysis of discrete event simulation of manufacturing, factory, distribution and other systems with variables and stochastic processes. Variance estimation methods including the bootstrap technique. Variance reduction approaches including control variates, stratified sampling, importance sampling, conditional expectations, and the use of hazard variables will be studied. (F,SP) Ross

290G. Advanced Mathematical Programming. (3) Three hours of lecture per week. Prerequisites: 262A. Selected topics in mathematical programming. The actual subject matter will include: convex analysis, duality theory, complementary pivot theory, fixed point theory, optimization by vector space methods, advanced topics in nonlinear algorithms, complexity of mathematical programming algorithms (including linear programming).

290R. Topics in Risk Theory. (3) Three hours of lecture per week. Prerequisites: 263A. Seminar on selected topics from financial and technological risk theory, such as risk modeling, attitudes towards risk and utility, riskneutral management, gambling and speculation, insurance and other risk-sharing arrangements, stochastic models of risk generation and run off, risk reserves, Bayesian forecasting and credibility approximations, influence diagrams, decision trees. Topics will vary from year to year.

298. Group Studies, Seminars, or Group Research. (1-4) Course may be repeated for credit. Seminars. Sections 1-4 to be graded on a satisfactory/unsatisfactory basis. Sections 5-8 to be graded on a letter-grade basis. Advanced seminars in industrial engineering and operations research. (F,SP) Staff

299. Individual Study or Research. (1-12) Course may be repeated for credit. Individual conferences. Sections 1-18 to be graded on a satisfactory/unsatisfactory basis. Sections 19-36 to be graded on a letter-grade basis. Individual investigation of advanced topics in industrial engineering and operations research. (F,SP) Staff

601. Individual Study for Master's Students. (1-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive in consultation with the field adviser. Students may not be used to meet either unit or residence requirements for a master's degree. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees). May not be used for unit or residence requirements for the doctoral degree. (F,SP) Staff

Professional Courses

300. Teaching Industrial Engineering and Operations Research. (1) One or two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Recommended for graduate students. (F,SP) Staff

Infectious Diseases and Immunity

(Contribution of Public Health, Interdepartmental Graduate Groups)

Department Office: 238 University Hall, (510) 642-2613 Student Affairs Office: 221 D. University Hall (510) 642-9189

Chair: Richard Stephens, Ph.D.

Professors

Eva Harris, Ph.D. (Public Health)
Fenyong Liu, Ph.D. (Public Health)
Daniel Portnoy, Ph.D. (Public Health)
Lee W. Riley, M.D. (Public Health)

Associate Professor

Gertrude Bluhering, Ph.D. (Public Health)

Assistant Adjunct Professor

Sangsoo Lu, Ph.D. (Public Health)

Program Overview

The Graduate Group in Infectious Diseases and Immunity provides opportunity for the study of the biology of infectious agents, their interaction with human and other hosts, and their relationship with the environment. The program is unique in its emphasis on integrated multidisciplinary training in host-pathogen environmental interactions. Important areas of inquiry include the biology of infectious agents, pathogen interactions, molecular and cellular aspects of pathogenesis, the ecology and evolution of disease agents, environmental factors in transmisson, intermediate hosts and vectors, the biology of surveillance and epidemiological analysis, vaccine and drug development, and public health practices for disease prevention and control.

The objective of this program is to provide students with research-oriented pursuits that will train them to design and implement independent investigations. The goal is to promote health by integration of basic research and applied technologies for the development of new approaches for the diagnosis, treatment, prevention, and control of infectious disease in humans.

Students matriculating through this program will acquire expertise in fundamental infectious disease research and thus are well prepared for careers in academia, governmental agencies, and biotechnology. For further information, go to microbe.berkeley.edu or the Ph.D. web site at microbe.berkeley.edu/idgroup.

Information

(School of Information)

Office: 102 South Hall, (510) 642-1464

Director: AnnaLee Saxenian, Ph.D.

Professors

Yale M. Braunstein, Ph.D. Economics of information and communication
Morton Hansen, Ph.D. Organization theory of information, collaborative management, knowledge sharing, social networks, business model innovation, managing knowledge
Ray R. Larson, Ph.D Information retrieval system design and evaluation

Students matriculating through this program will acquire expertise in fundamental infectious disease research and thus are well prepared for careers in academia, governmental agencies, and biotechnology. For further information, go to microbe.berkeley.edu or the Ph.D. web site at microbe.berkeley.edu/idgroup.

Assistant Professors

Jenna Burrell, Ph.D. Technology appropriation in non-Western societies, technology and socio-economic development, qualitative research methods
Brian Silver, Ph.D. Copyright law, open source and free software, technology and innovation policy
Coye Cheshire, Ph.D. Social capital, social psychology, social networks and information exchange

Professor:

Information Technology Law and Policy; Privacy, security, and technology

Tapan Parikh, Ph.D. HCI, ICDT, information systems supporting microfinance, smallholder agriculture and public health

Kimiko Ryokai, Ph.D. Human-computer interaction, tangible user interfaces

Adjunct Professors

Paul Duguid, M.A. Socio-cultural and community aspects of information, learning and technology
Robert Glushko, Ph.D. Document engineering, information policy
Eric Kansa, Ph.D. Executive director of the ISD Program
M. Caporossi, B.A. Information technology

Professor:

Information technology, economics, and policy

Joseph M. Hellerstein, Ph.D. (Haas School of Business)
Programs Overview
Providing the world with innovative information solutions and leadership, the UC Berkeley School of Information conducts research, provides policy counsel, and trains information professionals in five areas of concentration:

- Information design and architecture
- Information assurance
- Sociology of information
- Human-computer interaction
- Information economics and policy

Our work takes us wherever people seek, apply, create, deliver, use, and share information, and often brings us into partnership with four related disciplines: computer science, information science, social science, and management science.

The School of Information offers future information leaders a foundation in the technical, social, managerial, and policy dimensions of information—plus the opportunity to focus on unique fields within the information studies continuum.

Master’s Program
The Master of Information and Management Systems (MIMS) program is a 48-unit, two-year, full-time program, designed to train students in the skills needed to succeed as information professionals. Successful students must be familiar with the theory and practice of storing, organizing, retrieving, and analyzing information in a variety of settings in business, the public sector, and the academic world. Technical expertise alone is not sufficient for success; I School graduates will be expected to perform and manage a multiplicity of information-related tasks. In order to function effectively, they will need to:

- understand how to organize information;
- analyze user information needs;
- be able to design or evaluate information systems that allow for efficient and effective user interaction;
- be able to provide and assure the quality and value of information to decision makers;
- understand the economic and social environment in which their organization functions;
- be familiar with relevant issues in law, economics, ethics, and management.

Such a profession is inherently interdisciplinary, requiring aspects of computer science, cognitive science, psychology and sociology, economics, business, law, library/information studies, and communications.

Ph.D. Program
The doctoral program is a research-oriented program in which the student chooses specific fields of specialization, prepares sufficiently in the literature and the research of those fields to pass a qualifying examination, and completes original research culminating in the written dissertation. The degree of Doctor of Philosophy is conferred in information and management.

Lower Division Courses

24. Freshman Seminar. (Course) A course may be repeated for credit as topic varies. One hour of seminar per week per unit for five weeks. Sections 1-2 to be graded on a pass/fail basis. Formerly Information Systems and Management 24.

Freshman seminars are designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in many campus departments, and topics vary from semester to semester. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Formerly Information Systems and Management 39.

Freshman and sophomore seminars offer lower division students the opportunity to work with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Formerly Information Systems and Management 84.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close and active involvement of faculty, members and students in the crucial second year.

The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

Upper Division Courses

C103. History of Information. (3) Three hours of lecture per week. Prerequisites: Upper level undergraduates. Formerly Information Systems and Management C103. This course explores the history of information and associated technologies, uncovering why we think of ours as “the information age.” We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we’ll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa? Also listed as History C192, Media Studies C104C, and Cognitive Science C103. (F,SP) Duguid, Nunberg

141. Search Engines: Technology, Society, and Business. (2) Two hours of lecture and one hour of discussion per week. Formerly Information Systems and Management 141. In this course, students will first gain an understanding of the basics of how search engines work, and then explore how search engine design impacts business and culture. Topics include: search advertising, search optimization, search ranking, internationalization, anti-spam efforts, local search, peer-to-peer search, and search of blogs and online communities. Open to all undergraduate students and designed for those with little technical background. (F,SP) Staff

142AC. Access to American Cultural Heritages. (3) Three hours of lecture per week. Formerly Information Systems and Management 142AC. An introduction to issues in the preservation, description, and use of tangible cultural heritage resources. Documentation, ownership, and control of access to cultural heritage resources in the U.S. Cultural groups, cultural identity, cultural policies, and cultural institutions (libraries, museums, archives, etc.). Formerly Information Systems and Management 182AC. This course satisfies the American Cultures requirement. (F,SP) Staff

146. Foundations of New Media. (4) Three hours of lecture and one hour of laboratory per week. Formerly Information Systems and Management 146. This course is an introduction to interdisciplinary study and design of New Media. Survey of theoretical and practical foundations of New Media including theory and history; analysis and reception; computational foundations; social implications; human-computer interaction; technical, and narrative design. Instruction combines lectures and project-based learning using case studies from everyday technology (e.g., telephone, camera, web). (SP) Staff

182AC. Print, Literacy, and Power in America to 1900. (3) Three hours of lecture per week. Formerly Information Systems and Management 182AC. Focus on European Americans, Native Americans, African Americans, and—in the western United States—Asian American and Chicano/Latinos. The course explores the nature of oral and print societies as found in the focus cultures to address the dominant culture and the way it is transmitted on oral cultures. Image in woodcut and engraving as information and as propaganda. The role of education in achieving literacy. The emergence of an African American press in the 1800s. How gaining political support from the abolitionist press is in striking contrast to the nearly invisible Native American voice confined to the reservation. San Francisco is a study of the early emergence of a multicultural print and education environment, followed by restrictive laws, propaganda, and educational system that enforced cultural standardization and use of English. From technology to trends toward computerization, standardization, and few participants, an environment that inhibits the voices of a multicultural, multilingual population. This course satisfies the American Cultures requirement. (F) Staff

190. Special Topics in Information. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Information Systems and Management 190. A seminar focusing on topics of current interest. Topics will vary. A seminar paper will be required for students from other departments. (F,SP) Staff

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. (SP) Staff

199. Individual Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Formerly Information Systems and Management 199. Individual study of topics in information management and systems under faculty supervision. (F,SP) Staff

Graduate Courses


203. Social and Organizational Issues of Information. (4) Three hours of lecture per week. Prerequisites: Consent of instructor required for non-majors. Formerly Information Systems and Management 203. Social and organizational context of information systems, technology, practices, and artifacts on how people organize their work, interact, and understand experience. Individual, group, organizational, and societal issues in information production and use, information systems design and management, and information and communication technologies. Social science research methods for understanding information issues. (F,SP) Cheah

205. Information Law and Policy. (2) Two hours of lecture, one hour of discussion per week. Formerly Information Systems and Management 205. Law related to information, coding for credit. Course completed for a letter grade to fulfill degree requirements. Prerequisites: Consent of instructor required for non-majors. Formerly Information Systems and Management 205. For credit only. Focus on the law related to information, coding for credit. Course completed for a letter grade to fulfill degree requirements. (SP) Staff

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
206. Distributed Computing Applications and Infrastructure. (4) Course must be completed for a letter grade to fulfill degree requirements. Three hours of lecture per week. Prerequisites: 202 or 203, or consent of instructor. Formerly Information Systems and Management 206. Technological foundations for computing and communications: computer architecture, operating systems, networking, middleware, security. Programming paradigms: object-oriented design, design and analysis of algorithms, data structures. Distributed architectures and models, inter-process communication, concurrency, system performance. (F,SP) Staff

207. Analysis of Information Systems. (2) Three hours of lecture for seven and one-half weeks. Letter grading only. Prerequisites: Consent of instructor required for non-majors. Formerly Information Systems and Management 207. Systems and project management, focusing on the process of information systems analysis and design. Includes such topics as systems analysis, process analyses, cost and statistical analysis, accounting and budgeting, and planning. (F,SP) Braunstein

209. Professional Skills Workshop. (2) Two hours of lecture per week. Prerequisites: 202, 203, or consent of instructor. Formerly Information Systems and Management 209. Professional and interpersonal skills needed for success in the information industry. Issues associated with computer-mediated communication (CMC) systems (e.g., e-mail, newsgroups, wikis, online games, etc.). We will focus on the analysis of CMC practices, the relationship between technology and behavior, and the design and implementation issues associated with constructing CMC systems. This course primarily takes a social scientific approach viruses, worms, social psychology, economics, and sociology. (F) Cheshire

210. The Information and Services Economy. (3) Three hours of lecture per week. Formerly Information Systems and Management 210. An introduction to services and systems in retail, tourism, and healthcare that combines social science, business, and engineering knowledge needed for organizations (public, private, or nonprofit) to succeed in the shift to the service and information industry. A survey of: (1) the historical, economic, and theoretical foundations of the rise of the service economy; (2) the analysis and design of services; (3) the technology and implementation of services; and (4) the delivery of services. (SP) Staff

211. Group and Organizational Approaches to Information Systems Use. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. Formerly Information Systems and Management 211. The transmission and use of information among groups such as work groups and organizations. Information flows in organizations. Organizations as information processors. Collaboration, Computer-assisted cooperative work. Influencing strategies. Adoption of innovation. The uses of information for coordination and communication within organizations. (SP) Staff

212. Information in Society. (3) Three hours of lecture per week. Formerly Information Systems and Management 212. The role of information and information technology in organizations and society. Topics include: societal needs and demands, sociology of knowledge and science, diffusion of knowledge and technology, information seeking and use, information culture, and technology and culture. (SP) Van House


214. Needs and Usability Assessment. (3) Three hours of lecture per week. Prerequisites: 203 or consent of instructor. Formerly Information Systems and Management 214. Concepts and methods of needs and usability assessment. Understanding users’ needs and practices and translating them into design specifications. User-centered design and user testing; contextual design; heuristic evaluation; surveys, interviews, and focus groups; usability testing; ethnographic methods; managing usability in organizations; and universal usability. (SP) Van House

216. Computer-Mediated Communication. (3) Students will receive no credit for 216 after taking 290. Three hours of lecture per week. This course covers the practical and theoretical issues associated with computer-mediated communication (CMC) systems (e.g., e-mail, newsgroups, wikis, online games, etc.). We will focus on the analysis of CMC practices, the relationship between technology and behavior, and the design and implementation issues associated with constructing CMC systems. This course primarily takes a social scientific approach... (F) Cheshire

218. Concepts of Information. (3) Three hours of lecture per week. Prerequisites: 206 or consent of instructor. Formerly Information Systems and Management 218. As it’s generally used, “information” is a collection of notions, rather than a single coherent concept. In this course, we’ll examine conceptions of information based in information theory, philosophy, social science, economics, and history. Issues include: How are information and knowledge connected? What is the relationship between “information” and the abstract? What work do these various notions play in discussions of literacy, intellectual property, advertising, and the political process? And where does this leave “information studies” and “the information society”? (F) Duguid, Nunberg

219. Privacy, Security, and Cryptography. (3) Three hours of lecture per week. Prerequisites: 206 or consent of instructor. Formerly Information Systems and Management 219. Policy and technical issues related to securing and protecting information. Encryption and decoding techniques including public and private key encryption. Survey of security problems in networked information environment including viruses, worms, trojan horses, Internet address spoofing. (SP) Tygar

220. Management of Information Systems and Services. (3) Three hours of lecture per week. Formerly Information Systems and Management 220. Introduction to internal and external management issues in information organizations. Internal issues: organizational behavior, organizational theory, personnel, budgeting, planning. External issues: organizational environments, politics, marketing, strategic planning, funding sources. (SP) Staff

221. Information Policy. (3) Three hours of lecture per week. Formerly Information Systems and Management 221. An examination of the nature of corporate, nonprofit, and governmental information policy. The appropriate role of the government in production and dissemination of information, the tension between privacy and freedom of access to information. Issues of potential conflicts in values and priorities in information policy. (SP) Braunstein


233. Cyberlaw. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. Formerly Information Systems and Management 233. Cyberlaw. The role of information and information systems—a new, interdisciplinary field that combines social science, business, and engineering knowledge needed for organizations (private, public, or nonprofit) to succeed in the shift to the service and information industry. A survey of: (1) the historical, economic, and theoretical foundations of the service and information industries. (3) the technology and implementation of services; (3) the delivery of services. (SP) Larson

242. The Extensible Markup Language (XML) with its ability to define formal structural and semantic definitions for metadata and information models, is the key enabling technology for information services and documentation models that use the Internet and its family of protocols. This course introduces XML syntax, transformations, schema languages and the querying of XML databases. It balances conceptual topics with practical skills for designing, implementing, and handling conceptual models as XML schemas. (SP) Staff

244. Document Engineering and Information Architecture. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. Formerly Information Systems and Management 244. This course introduces the discipline of document engineering: specifying, designing, and deploying electronic documents and information repositories that enable document-centric applications. These include web services, virtual enterprises, information supply chains, single-source publishing, and syndication in domains as diverse as healthcare, education, e-commerce, and e-government. (SP) Guishko

245. Organization of Information in Collections. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. Formerly Information Systems and Management 245. Standards and practices in organization and management of information, textual, and nontextual collections. Design, selection, maintenance, and evaluation of cataloging, classification, indexing, and thesaurus systems for specific settings. Codes, formats, and standards for representation and transfer of data. (SP) Larson

246. Multimedia Information. (3) Three hours of lecture per week. Prerequisites: 202, 203, or consent of instructor. Formerly Information Systems and Management 246. Concepts and methods of design, management, creation, and exchange of multimedia information systems. Theory and practice of digital media production, reception, organization, retrieval, and reuse. Review of applicable digital technology with an emphasis on digital media production. Will involve group projects in the design and development of digital media systems and applications. (SP) Staff

247. Information Visualization and Presentation. (3) Three hours of lecture per week. Prerequisites: 213, Computer Science 160, or consent of instructor. Formerly Information Systems and Management 247. The design and presentation of digital information. Use of graphics, animation, sound, visualization software, and hypermedia in presenting information to the user. Methods of presentation and information visualization to enhance comprehension and analysis. Incorporation
of visualization techniques into human-computer inter-
faces. (SP) Hearst

250. Computer-Based Communications Systems and Networks. (3) Three hours of lecture per week. Prerequisites: 206 or equivalent. Formerly Information Systems and Management 250. Communication concepts, network architectures, data communication software and hardware, networks (e.g., LAN, wide), network protocols (e.g., TCP/IP), network manage-
ment, and security. Issues in information systems. Policies and man-
age implications of the technology. (F) Chuang

256. Applied Natural Language Processing. (3) Three hours of lecture per week. Prerequisites: 255, a computer science background, or equivalent. For-
merly Information Systems and Management 256. This course will examine the state-of-the-art in applied Natural Language Processing (also known as con-
tent analysis and language engineering), with an emphasis on how well existing algorithms perform and how they can be used (or not) in applications. Topics include: part-of-speech tagging, shallow pars-
ing, text classification, information extraction, incor-
poration of lexions and ontologies into text analysis, and question answering. Students will apply and extend existing software tools to text-processing prob-
lems. (F,SP) Hearst

257. Database Management. (3) Three hours of lec-
ture per week. Formerly Information Systems and Management 257B. Database systems development and databases. Database design concepts, query languages for database applications (such as SQL), conventional and non-conventional database se-
curity, issues in the management of databases. Use of report writers, application generators, high-
level interface generators. (SP) Larson

C258. Analysis and Design of Databases. (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: 257B and consent of instruc-
tor. Advanced topics in information management, focusing on design of relational databases, querying, and normalization. New issues raised by the World Wide Web. Research projects on current topics in information technology. Also listed as Industrial Engin and Oper Research C215. (F,SP) Goldberg

C262. Theory and Practice of Tangible User Inter-
faces. (4) Students will receive no credit for C262 after taking 290, Section 4. Three hours of lecture and one hour of laboratory per week. This course explores the theory and practice of Tangible User Interfaces, a new approach to Human Computer Inter-
action that focuses on the physical interaction with computers. The topics covered in the course include: theoretical framework, design examples, enabling technologies, and evaluation of Tangible User Interfaces. Students will design and develop experimental Tangible User Interfaces using physical computing prototyping tools and write a final project report. Also listed as New Media C262. (F) Ryokai

271A. Quantitative Research Methods for Infor-
mation Systems and Management. (3) Three hours of lecture per week. Formerly Information Systems and Management 271A. Quantitative methods for data collection and analysis. Research design. Concep-
tualization, operationalization, measurement. Modes of data collection, including experiments, survey research, and observation. Sampling, basics of data anal-
ysis. (F) Tygar

271B. Quantitative Research Methods for Infor-
mation Systems and Management. (3) Three hours of lecture per week. Prerequisites: Introductory statis-
tics recommended. Introduction to many different types of quantitative research methods, with an emphasis on using quantitative statistical techniques to real-world research methods. Introductory and intermediate topics include: defining research problems, theory testing, causality, explanatory, and univariate statistics. Research design and methodology topics include: pri-
mary/secondary survey data analysis, experimental designs, and coding qualitative data for quantitative anal-
ysis. (SP) Cheshire

272. Qualitative Research Methods for Informa-
tion Systems and Management. (3) Three hours of lecture per week. Formerly Information Systems and Management 272. Theory and practice of qualita-
tive inquiry. Grounded theory. Ethnographic methods including interviews, focus groups, naturalistic ob-
servation, case studies. Analysis of qualitative data. Issues of validity and generalizability in qualitative re-
search. (SP) Burrell

280. Information and Communication Technolo-
gies and Development: Context, Strategies and Impacts. (3) Three hours of lecture per week. What role can information and communications technolo-
gies play in transforming developing econo-
 mies? This interdisciplinary course positions recent public and private sector initiatives in the context of postwar development theory and practice, and sur-
veys methods of evaluating projects that either develop new technologies, such as wireless communications and low-cost computing, or that apply new technolo-
gies to areas, such as healthcare, government, micro-
finance, and literacy. (SP) Staff

C283. Information and Communications Technol-
yies for Development. (3) Three hours of lecture per week. Formerly Information Systems and Management 283. The organization and administration of library services and their place in the institutions and communities they serve. Governance, collections, and buildings. Planning, organizing, innovating, staffing, budgeting, controlling. Technological change, digital libraries. Political and economic aspects. (SP) Staff

290. Special Topics in Information. (1-4) Course may be repeated for credit as topic varies. Two to six hours of lecture per week for one to three hours for lecture per week for 15 weeks. Prerequisites: Permission of instructor. Formerly Information Systems and Management 290. Specific topics, hours, and credit may vary from section to section, year to year. (F,SP) Staff

290A. Special Topics in Information. (1,2) Course may be repeated for credit. One and one-half to two hours of lecture per week for two hours of lecture and two hours of seminar per week for six weeks. Three hours of lecture per week for five weeks. Prerequisites: Consent of instruc-
tor. (F,SP) Staff

295. Colloquium. (1) One hour of collo-
quium per week. Must be taken on a satisfac-
tory/unsatisfactory basis. Prerequisites: Ph.D. standing in the School of Infor-
mation. Formerly Information Systems and Management 295. Colloquia, discussion and readings designed to introduce students to the range of interests and current work in the field. (F) Staff

295A-295B. Seminar. (2-4;2-4) Course may be repeated for credit. Two to four hours of seminar per week. prerequisites: Consent of instruc-
tor. Formerly Information Systems and Management 295A. Seminar. Topics in information management and sys-
tems and related fields. Specific topics vary from year to year. May be offered as a two-semester sequence. (F,SP) Staff

296A. Seminar. Three hours of lecture per week. Prerequisites: Consent of instructor. Applied Natural Language Processing. Course may be offered as a two-semes-
ter sequence. (F,SP) Staff

296B. Colloquium. (1) One hour of collo-
quium per week. Must be taken on a satisfac-
tory/unsatisfactory basis. Prerequisites: Ph.D. standing in the School of Infor-
mation. Formerly Information Systems and Management 296B. Seminar. Topics in information management and sys-
tems and related fields. Specific topics vary from year to year. May be offered as a two-semester sequence. (F,SP) Staff

298. Directed Group Study. (1-3) Course may be repeated for credit as topic varies. Weekly group meet-
ings. Prerequisites: Consent of instructor. Formerly Information Systems and Management 298. Group projects on special topics in information management and systems. (F,SP) Staff

298A. Directed Group Work on Final Project. (2) No credit will be given if 298 has been taken to fulfill final project requirement. Two hours of directed group study per week. Prerequisites: Individual study of instructor. Course must be taken for a letter grade to fulfill degree require-
ments. The final project is designed to integrate the skills and concepts learned during the School of Infor-
mation master’s program and helps prepare students to compete in the job market. It provides experience in formulating and carrying out a sustained, coherent, and significant course of work resulting in a tangible work product; in project management; in presenting work in both written and oral form; and, when appro-
priate, in working in a multidisciplinary team. Projects may take the form of research papers or profession-
ally-oriented applied work. (SP) Staff

299. Individual Study. (1-12) Course may be repeated for credit. Prerequisites: Consent of instructor. Requires: Consent of instructor. Formerly Informa-
tion Systems and Management 299. Individual study of topics in information management and systems under supervision. May be offered as a one-semester or as a two-
semester course. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-5) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Con-
sent of instructor. Formerly Information Systems and Management 602. Individual study in consultation with the major field advisor. intended to provide an oppor-
tunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree. (F,SP) Staff

Integrative Biology (College of Letters and Science)

Department Office: 3060 Valley Life Sciences Building, (510) 643-5024
Undergraduate Student Services: (510) 643-7204, (510) 643-1667
Graduate Affairs Office: (510) 643-7330
ib.berkeley.edu
Chair: Wayne P. Sousa, Ph.D.

Professors
Bruce G. Baldwin, Ph.D. University of California, Davis. Systems and evolution of marine invertebrates. (College of Letters and Science)
Anthony D. Barossky, Ph.D. University of Washington, Seattle. Mammalian paleobiology
Gary D. Brooks, Ph.D. University of Michigan. Exercise physiology and metabolism
Roy L. Caldwell, Ph.D. University of Iowa. Invertebrate behavioral biology and ecology
Todd E. Dawson, Ph.D. University of Washington, Seattle. Physiological plant ecology and stable isotope biogeochemistry
T. Marian C. Diamond, Ph.D. University of California, Berkeley. Neuroanatomy, environment, immune functions, hormones
Robert Dudley, Ph.D. University of Cambridge. Biomechanics and comparative physiology
Robert J. Full, Ph.D. State University of New York, Buffalo. Comparative biomechanics, physiology and functional morphology
Tyrone B. Hayes, Ph.D. University of California, Berkeley. Developmental endocrinology
Carole Hickman, Ph.D. Stanford University. Evolutionary paleobiology, morphology
John P. Huelsenbeck, Ph.D. University of Texas, Austin. Evolutionary biology, phylogenetics theory, evolutionary genetics
Patrick V. Kirch, Ph.D. Yale University. Origins of Oceanic peoples and the chronology of Lapita settlement, the Lapita cultural complex, evolution of the Polynesian cultures, human impacts on island ecosystems, and the development of a phylogenetic approach in historical anthropology
Mimi A. R. Kishi, Ph.D. Duke University. Invertebrate functional morphology and biomechanics
Joshua Lerman, Ph.D. University of California, Berkeley. Motor control
David R. Lindberg, Ph.D. University of California, Santa Cruz. Evolutionary biology, ecology
Jeff S. Love, Ph.D. University of California at Los Angeles. Paleontology of marine environment
Brent D. Mishler, Ph.D. Harvard University. Bryology, systematics, and evolutionary biology
Craig A. Moritz, Ph.D. Australian National University. Vertebrate evolution, conservation biology
Kevin Paladin, Ph.D. Yale University. Paleontology, evolutionary biology
The faculty has special strengths in the disciplines of morphology, organismal physiology, animal behavior, biomechanics, ecology, systematic biology, paleobiology, population genetics, and evolution.

Students who major in integrative biology will gain general knowledge in the biological sciences, which provides an excellent foundation for health-related professions (medicine, dentistry, veterinary medicine, physical therapy, optometry, etc.) or for those interested in biology of organisms and wish to pursue graduate studies in various sub-disciplines such as field biology, ecology, behavior, paleontology, and evolution.

Lower Division. The foundation for this major includes a basic one-year course in biology, general chemistry, organic chemistry, physics, and mathematics. Additional coursework in mathematics, statistics, biochemistry, history of biology, and multiple languages may be helpful for those planning on graduate and/or professional studies.

Upper Division. This curriculum is designed to provide the intellectual tools and techniques necessary to conduct multidisciplinary work in the areas of organismal biology and to prepare students as biology-oriented researchers. No formal specialization is possible as an undergraduate, yet students select courses to reflect interests and areas of focus in preparing to meet all upper division requirements.

Students must complete at least one course in genetics, as well as two lecture/laboratory, and one field course to provide experience and methodologies for study of both living and extinct organisms, and three courses from designated sub-areas within integrative biology.

Courses for Non-majors. The department offers a series of courses for students not specializing in integrative biology. These courses provide instruction in the general principles of biology from a variety of viewpoints, ranging from the molecular level through behavior and evolution. Each year, a variety of seminars are available for freshmen (IB 24) and sophomores (IB 39, IB 84) to introduce them to areas of integrative biology.

The Major

Note: All courses must be taken for a letter grade.

Lower Division. Required of all students in the major:

- Biology 1A (3), 1AL (2), 1B (4); Chemistry 1A (4), 3A (3), 3AL (2), 3B (3), 3BL (2); Mathematics 16A (3); Physics 8A (4), 8B (4).

With approval of an advisor, more advanced courses may be substituted for those listed above.

Upper Division. At least three integrative biology courses, one from each of the following paths, to be selected in consultation with an adviser:

1. Ecology/evolution/behavior;
2. Physiology/structure/biomechanics;
3. Human biology/health science;

- plus one genetics course and two lecture/laboratory, or lecture/laboratory/field courses.

The minimum total upper division units required to complete the major is 26. Students should plan to take additional upper division courses to reflect areas of interest and intellectual development.

The department web site at ib.berkeley.edu presents greater information about planning a major within this field, such as lists of courses applicable for major requirements, course-by-course semester schedule plans. Please visit ib.berkeley.edu/student/undergrad/major to explore undergraduate requirements and options.

Juniors and seniors are encouraged to pursue independent study research (IB 199) under the supervision of a faculty member. Interested students should have completed at least 60 units of credit and be in good academic standing. One can consider possible research opportunities by visiting the web pages of various Department of Integrative Biology faculty, graduate students, and affiliated research centers, museums, and collections at ib.berkeley.edu/research.

Note: Transfer students with 56-70 units must complete all lower division requirements before transferring to Berkeley.

Honors Program. Students with a minimum GPA of 3.3 overall and in the major should consider participating in the honors program. They must identify an appropriate faculty sponsor who agrees to advise the student, submit an oral research proposal by the end of their sophomore year, and fulfill the requirements of the honors thesis. Coursework to graduate with honors, students must maintain a minimum 3.3 GPA overall and in the major.

Graduate Program in Integrative Biology

Students planning to enter graduate study in integrative biology are expected to have the equivalent of a major in a biological science, although students with other appropriate backgrounds are encouraged to enter the program. The Department of Integrative Biology offers a Ph.D. program. The program for the Ph.D. varies considerably, according to the background and interests of individual students. All candidates for the Ph.D. must pass an oral qualifying examination. The crucial part of the Ph.D. program is the thesis, based upon original research in which the candidate demonstrates the ability to conduct independent study and to incorporate the results of the research project wishes to do and enroll in an approved plan (6 units) of the honors thesis course (H196A-196B). These students must present the results of that work in the form of a written report, the honors thesis. To graduate with honors, students must maintain a minimum 3.3 GPA overall and in the major.

Research Facilities

The Botanical Garden, located on 34 acres in Strawberry Canyon, provides opportunities for research with living plants, supplies and teaching material for classes on campus, and serves as an outdoor laboratory for students. Independent student and internship opportunities are available in horticulture and plant conservation. The garden is organized primarily by geographic region: California, South America, Mexico/Central America, South Africa, Australasia, Mediterranean, Eastern North America, and Asia. Specialized collections include succulents and cacti, carnivorous plants, orchids, ferns, roses, tropical plants, a Chinese medicinal herb garden, and an herb garden. Laboratory and greenhouse facilities are available at the Botanical Garden Plant Conservation Research Center. For further information on programs, and opportunities, go to botanicalgarden.berkeley.edu. Inquiries can be addressed to the director by mail at UC Botanical Garden, 200 Central Drive #5045, Berkeley, CA 94720-5045; e-mailed to garden@berkeley.edu; or by calling (510) 643-2755.
The Cancer Research Laboratory is a research institute on the Berkeley campus that carries on a research, teaching, and service program dedicated to potential solutions to problems in cancer research. The central research program represents a multidisciplinary approach to an understanding of the mechanism of neoplastic transformation and a variety of systems. Graduate student and postdoctoral research programs are supported in various areas of tumor biology: biochemistry, cell biology, endocrinology, genetics, immunology, molecular biology, and tumor virology. The Cancer Research Laboratory also operates five research facilities: (1) Flow Cytometry Facility for fluorescence activated cell sorting and analysis; (2) Molecular Imaging Facility with two-photon microscopy and image analysis; (3) Proteomic Mass Spectrometry Facility; (4) Immunology DNA Microarray Consortium; and (5) The Gene Targeting Facility for construction of transgenic and chimeric mice. Instrumentation in the facilities is operated by highly trained staff who offer instruction in the methods and techniques associated with each facility. For more information, go to biology.berkeley.edu/crl.

The Center for Interdisciplinary Bio-inspiration in Education and Research (CIBER) has been established to lead in the development of a new field of Integrative Systems Biomechanics that merges with the construction of integrated models in other disciplines such as physics, mathematics and engineering to a degree not seen before. The disciplines focus on the physics of how organisms function and interact with their environment. The goal of this CIBER is to develop a physical modeling paradigm that can be applied to a diversity of organisms and unique innovations. The fluid and solid mechanics of organisms are examined using direct experiments and computational and analytical approaches and both mathematical and physical modeling. Using this approach, the next generation of scientists and engineers will gain experience in combining with other disciplines as well as how to extract principles in biology that inspire novel design in engineering. In addition to developing innovative methods of teaching and research, CIBER has established an interdisciplinary teaching laboratory that allows students in undergraduate, as well as graduate courses, to address challenging problems that will give them a meaningful interdisciplinary learning experience. These facilities are being used in a number of existing and new courses, at both the undergraduate and graduate levels. For more information on CIBER, see the web site at ciber.berkeley.edu.

The Center for Stable Isotope Biogeochmistry (CSIB), is an analytical facility established as a University Education, research, training, and service unit. The center provides high precision, state-of-the-art instrumentation for analyzing the stable isotope composition of a diversity of materials (e.g., plant and animal tissue samples, soils, atmospheric gases, water, specific compounds, organic matter, etc.), as well as spotty fresh and dry leaf samples, and producing sample material for analysis. The center also serves as a focal point for research and training of many of our programs at UC Berkeley (e.g., in Biology, Ecology, Paleontology, Anthropology, Geography, Chemistry, Hydrology, Atmospheric, and Soil Sciences). The specialized equipment housed in the facility serves a broad range of student, postdoctoral, and faculty needs. This equipment includes several gas phase isotope ratio mass spectrometers (IRMS); these mass spectrometers have the capabilities of analyzing the isotopic composition of hydrocarbons, organics, amino acids, biological and geological samples, gasses (biogenic and atmospheric), and water. In addition to the instrument laboratory, the center houses a fully equipped sample extraction and preparation laboratory for handling a full range of sample types. For more information, see its web site at ib.berkeley.edu/groups/biogeochm.

The Field Station for Behavioral Research is a research institute that supports behavioral studies on animals under natural and seminatural conditions. Situated approximately 20 miles from the top of Strawberry Canyon two miles from the central campus, the field station maintains and observes a variety of animal species. Faculty from several Berkeley and Integrative Biology conduct research at the station. Its facilities are available to graduate and postdoctoral research with the approval of the director. People interested in the field station may contact the director via email at frogstation@berkeley.edu.

The Gump South Pacific Research Station, French Polynesia, is located on Moorea (17°30’S 149°50’W), one of the Society Islands, 15 km northwest of the main island of Tahiti. Moorea offers direct access to habitats ranging from coastal reef, lagoons, coastal beaches, freshwater streams, wetlands, and mountain forests. The Gump Station occupies 14 hectares (35 acres) of land from the beachfront to a short walk inland to Cook’s Bay, providing excellent access to the ocean, lagoon, and island interior. A range of housing options (shared dormitories, private bungalows) and laboratories allow long- and short-term research and education in a diversity of fields, including marine, freshwater, and terrestrial biology, evolutionary and conservation biology, archaeology, anthropology, ethnobotany, geology, and geoscientific methods. Over 70 laboratories; boats and 4WD vehicles. A waterfront marine laboratory contains an open seawater system and equipment for UC Scientific Diving. A large climate controlled research laboratory with academic and student work areas and several laboratories including space for morphological work (high-quality microscopes) and molecular genetic analyses. The Station is connected to the mainland via the Inter-Island Airlines' daily flight and has WiFi access in all common areas. For further information, contact Dr. Neil Davies, Executive Director, at ndavies@moorea.berkeley.edu. More information is available on the station web site at moorea.berkeley.edu.

The Human Evolution Research Center (HERC) is dedicated to the study of human origins and evolution. HERC represents an international focal point for field and laboratory research and education. It is a center for the study of the process and products of human evolution. Research by the HERC includes both field and laboratory investigation. The center’s collections and facilities provide support to students working on important, large-scale investigations. These include the Middle Awash Project and The Revealing Hominid Origins Initiative (RHOI). For more information, see the web sites at herc.berkeley.edu and rhi.berkeley.edu, respectively.

The Jane Gray Research Greenhouse is operated by the Department of Integrative Biology and comprises 1,400 square feet of state-of-the-art research space, used for projects by faculty and students. The climate management system is computer-controlled and monitors temperature, humidity, light energy, and wind speed and direction. Outdoor conditions to which these conditions can be controlled centrally or from a remote location through an on-screen ARGUS interface to gas heaters, evaporative coolers, vents, fans, and switches. The facility provides an ideal resource for plant growth investigations that require closely controlled and monitored conditions. For more information, see jgray.berkeley.edu.

The Museum of Paleontology (UCMP), a research institute for faculty, staff, students, and qualified visiting scholars, has one of the largest and most important collections of fossil protists, invertebrates, plants, and vertebrates in the world. The museum has no public exhibits; it is primarily a research and educational facility that supports behavioral studies on animals under natural and seminatural conditions. Situated approximately 20 miles from the top of Strawberry Canyon two miles from the central campus, the field station maintains and observes a variety of animal species. Faculty from several Berkeley and Integrative Biology conduct research at the station. Its facilities are available to graduate and postdoctoral research with the approval of the director. People interested in the field station may contact the director via email at frogstation@berkeley.edu.

The University of California Natural Reserve System (NRS) was founded in 1965 to establish and maintain significant examples of California’s diverse aquatic and terrestrial ecosystems for understanding, model teaching, and public service. The 33 reserves are open to all qualified individuals and institutions for scholarly work in disciplines ranging from ecology and environmental science to anthropology and paleoecology. For more information on the NRS, contact the UC Office of the President at (510) 987-0150 or go to rns.ucop.edu. For specific information regarding the four reserves administered by the Berkeley campus, contact...
The goal of the course, Biomotion, is to involve students in a multidisciplinary vision of biology, engineering design, and computer science by learning the principles of how animals move in their environment. It is designed to introduce students to the fundamentals of comparative biology, evolutionary theory, and genetics. This course satisfies the American Cultures requirement. (F) Hrusko

39. Topics in Integrative Biology. (2) Two hours of discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Preferentially open to freshmen. Consent of instructor: reading and discussion of the literature on particular topics in the field of integrative biology. Term paper and oral presentation. Section topics will vary from semester to semester. Students should check with the Secretary of the course for each semester’s offerings. (F,S,SP) Staff

41. Marine Mammals. (2) Two hours of lecture per week. Prerequisites: Designed for those not specializing in Integrative Biology. A survey of marine mammal evolution, biology, behavior, ecology, and politics applied to marine mammals found in the North Pacific.Coverage would include: origin and evolution of cetaceans, pinnipeds, sirenians, and sea otters; basic biology and anatomy of marine mammal groups, and North Pacific species in particular; ecological interactions and role in nearshore and pelagic marine communities; and interactions between humans and marine mammals. (F) Lindberg

C82. Introduction to Oceans. (2) Two hours of lecture per week. Prerequisites: One of the following courses at high school level: physics, chemistry, or biology is recommended. The geology, physics, chemistry, and biology of the world oceans. The application of oceanic science may be explored through special topics such as energy from the sea, marine pollution, food from the sea, and climate change. Also listed as Geography C82 and Earth and Planetary Science C82. (F) (B) (S,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Enrollment limited to 15 sophomores. (F,SP) Staff

85. Leadership Communications for Biology Scholars. (1) Two hours of lecture per week. Prerequisites: Acceptance into Biology Scholars Program. Leadership skills and abilities such as collaboration, critical thinking, and resourcefulness and their critical role in future success. The course may be repeated on a passed/not passed basis. Prerequisites: GPA of 3.4 or greater. Formerly Botany 99, Physiology 99, Anatomy 99. Lower division independent study and research intended for the academically superior student. Enrollment on an individual basis. (F,SP) Staff

98. Directed Group Study. (1-4) Course may be repeated for credit. One hour of group study per unit per week. Must be taken on a passed/not passed basis. Prerequisites: Freshmen and sophomores only. Lectures and small group discussions focusing on topics of interest, varying from semester to semester. (F,S,SP) Staff

99. Supervised Independent Study and Research. (1-4) One hour of seminar per week. Prerequisites: Two and one-quarter hours of seminar per week per unit for one semester. Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: One of the following courses at high school level: physics, chemistry, or biology is recommended. The geology, physics, chemistry, and biology of the world oceans. The application of oceanic science may be explored through special topics such as energy from the sea, marine pollution, food from the sea, and climate change. Also listed as Geography C82 and Earth and Planetary Science C82. (F) (B) (S,SP) Staff

31. Animal Behavior Biology: An Evolutionary Perspective Behavioral View. (3) Students will receive no credit for 31 after taking C144 or Psychology C115B. Two hours of lecture, one hour of film/demonstration and one hour of discussion per week. Prerequisites: Open to all students; designed for those not specializing in biology. Principles of evolution biology as they relate to animal behavior and behavioral ecology with broad coverage of animal groups. Special attention will be paid to the emerging discipline of behavioral ecology. (SP) Caldwell

32. Biomotion. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Open to all students. The goal of the course, Biomotion, is to involve students in a multidisciplinary vision of biology, engineering design, and computer science by learning the principles of how animals move in their environment. (SP) Caldwell

35AC. Human Biological Variation. (3) Three hours of lecture per week. This course addresses modern human biological variation from historical, comparative, evolutionary, biomedical, and cultural perspectives. It is designed for students in the biological and social sciences, and in particular those with interests in the various areas of comparative biology, evolutionary theory, and supervision. Students will learn how to develop a project, collect and record data, conduct and analyze experiments, write a report, and make an oral presentation. Project may require visits to several research sites. Students are required to attend at least three department seminars and write a short critique of each. (F,SP) Staff

C96. Studying the Biological Sciences. (1) Two hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Freshmen will be introduced to the "culture" of the biological sciences, along with an in-depth orientation to the academic life and the culture of the university as they relate to majoring in Biology. Students will learn concepts, skills, and information that can be used in their major course, and as future science professionals. Restricted to freshmen in the biology scholarship program. Also listed as Biological C96 and Molecular and Cell Biology C96. (F) Matsui

98. Directed Group Study. (1-4) Course may be repeated for credit. One hour of group study per unit per week. Must be taken on a passed/not passed basis. Prerequisites: Freshmen and sophomores only. Lectures and small group discussions focusing on topics of interest, varying from semester to semester. (F,S,SP) Staff

99. Supervised Independent Study and Research. (1-4) One hour of seminar per week. Prerequisites: Two and one-quarter hours of seminar per week per unit for one semester. Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: One of the following courses at high school level: physics, chemistry, or biology is recommended. The geology, physics, chemistry, and biology of the world oceans. The application of oceanic science may be explored through special topics such as energy from the sea, marine pollution, food from the sea, and climate change. Also listed as Geography C82 and Earth and Planetary Science C82. (F) (B) (S,SP) Staff

C100. Communicating Ocean Science. (4) Two and one-half hours of lecture, one hour of discussion, and two hours of fieldwork per week. Prerequisites: Open to all students. A course in introductory biology, geology, chemistry, physics, and marine science is recommended before entering this course. Prerequisites: GPA of 3.4 or greater. Formerly Botany 99, Physiology 99, Anatomy 99. Lower division independent study and research intended for the academically superior student. Enrollment on an individual basis. (F,SP) Staff

C101. Diversity of Plants and Fungi. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with 101L. An integrated treatment of the biology and evolution of the major groups in the plant kingdom, algae, and fungi. Also listed as Plant and Microbial Biology C102. (F) (S) Staff

C101L. Laboratory in the Diversity of Plants and Fungi. (2) Four hours of laboratory per week and two 1-day field trips. Prerequisites: Biology 1A-1B. Must be taken concurrently with 101L. An integrated treatment of the biology and evolution of the major groups in the plant kingdom, algae, and fungi. Also listed as Plant and Microbial Biology C102L. (F) (S) Staff

102. Introduction to California Plant Life. (2) Two hours of lecture per week. Prerequisites: Biology 1B or consent of instructor. Must be taken concurrently with 102L. The relationship of the main plant groups and the plant communities of California to climate, soils, vegetation, geological and recent history, evolutionary biology, and conservation. (SP) Carlson

102L. Laboratory in California Plant Life. (2) Six hours of laboratory per week and at least two Saturday field trips. Prerequisites: Biology 1B or consent of instructor. Must be taken concurrently with 102. A survey of California Floristics focusing on identification and taxonomy of the main plant genera and major plant families, as well as the use of keys to identify native and introduced ferns, clubmosses, and flowering plants of the state. (SP) Carlson
103. Invertebrate Zoology. (3) Three hours of lecture per week. Prerequisites: Biology 1A, 1B. Must be taken concurrently with 103L. Formerly Zoology 103. Invertebrate zoology will be a survey of the biology of invertebrates, stressing comparative functional morphology, phylogeny, natural history, and aspects of physiology and development. Offered alternate years. (SP) Lindberg

103L. Invertebrate Zoology Laboratory. (2) Six hours of laboratory per week plus several weeks of field trips. Prerequisites: Biology 1A, 1B. Must be taken concurrently with 103. Formerly Zoology 188. Laboratory study of invertebrate diversity and functional morphology of field study of the natural history of local marine invertebrates. Offered alternate years. (SP) Lindberg

104. Natural History of the Vertebrates. (3) Three hours of lecture per week. Prerequisites: Must be taken concurrently with 104L. Formerly Zoology 107. Biology of the vertebrates, exclusive of fish. (SP) McGuire, Bowie

104L. Vertebrate Natural History Laboratory. (2) Three hours of laboratory and a four-hour field trip per week, plus special field projects. Prerequisites: Biology 1A-1B. Must be taken concurrently with 104. Formerly Zoology 187. Laboratory and field study of local vertebrates exclusive of fish. (SP) McGuire, Bowie

106. Biological Oceanography. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B, 103, 103L recommended, chemistry and calculus. This course will explore the interactions of organisms with physical, chemical, and geological processes in the ocean. Overviews of basic physical, chemical, and geological principles and the major functional groups of marine organisms will be followed by investigations of oceanic ecosystems, ocean processes, and intertidal environments. Grade is based on short written assignments. (SP) Powell

106A. Physical and Chemical Environment of the Ocean. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B, Chemistry 1A 1A or 4A; Mathematics 1A or 16A; Physics 7A or 8A. Recommended: 82. The biological implications of marine physics and chemistry. History and properties of seawater. Geophysical fluids. Currents and circulation. Deep sea, coastal oceans, estuaries, and intertidal environments. (F) Portnoy, Shapira

106L. Biological Oceanography Laboratory. (3) Three hours of scheduled laboratory, plus three hours of unscheduled laboratory per week, one-day research cruises, and one-field trip per quarter. Prerequisites: Biological Oceanography. Formerly Integrative Biology 100. An analysis of the structural diversity of multi-cellular plants, especially the higher forms, with emphasis on the developmental mechanisms responsible for this variation in form and the significance of this diversity in relation to the environments in which plants grow. Also listed as Plant and Microbial Biology C107. (F) Staff

C107. Principles of Plant Morphology. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with 107L. Formerly 107. An analysis of the structural diversity of multi-cellular plants, especially the higher forms, with emphasis on the developmental mechanisms responsible for this variation in form and the significance of this diversity in relation to the environments in which plants grow. Also listed as Plant and Microbial Biology C107. (F) Staff

C107L. Laboratory for Principles of Plant Morphology. (2) Six hours of laboratory per week. Prerequisites: Biology C107. Must be taken concurrently with 107L. Formerly 107L. Laboratory designed to accompany C107, Principles of Plant Morphology. Also listed as Plant and Microbial Biology C107L. (F) Staff

108. Principles of Paleontology. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: A course in biology, earth science, anthropology, or consent of instructor. An introduc-
C129. Human Physiological Assessment. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 123A, 123AL (may be taken concurrently) or human anatomy. Level of biological assessment in relation to physical activity and conditioning. Performance of laboratory procedures in the measurement and interpretation of physiological fitness (cardiovascular, bone density, muscular, musculoskeletal fitness). Also listed as Physical Education C129. (SP) Johannessen

131. General Human Anatomy. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B or Chemistry 1A. The functional anatomy of the human body as related to growth, development, and microscopic examination. Designed to be taken concurrently with 131L. (F) Diamond

131A. Applied Anatomy. (1) Course may be repeated once for credit. One hour of lecture per week. Must be taken on a pass/no pass basis. A series of 15 lectures by former students of 131 who have become successful physicians and surgeons. The purpose is to provide the practical applications of anatomy, e.g., plastic surgeons, neurosurgeons, vascular surgeons, pathologists, etc. (F) Diamond

131L. General Human Anatomy Laboratory. (2) Four hours of laboratory per week. Prerequisites: Biology 1A-1B or Chemistry 1A. 131 (may be taken concurrently). Prepared human dissections, models, and microscopic slides. (F) Diamond

132. Survey of Human Physiology. (3) Students will receive no credit for 132L after taking Molecular and Cell Biology 32L or 136L, or if currently enrolled in similar courses. Three hours of lecture per week. Prerequisites: 131, Biology 1A. Mechanisms by which key physiological priorities are maintained in healthy humans. From a basis in elementary theories of information and control, we develop an understanding of homeostasis of cellular composition, structure, and energy metabolism. We then study neural and endocrine signaling in humans, and develop the key concepts of control and homeostasis in all the major organ and multi-organ systems, including cardiovascular, respiratory, renal, metabolic, reproductive, and immune systems, growth and development, and sensory and motor systems. (SP) Brooks, Kauer, Lehman

132L. Mammalian Physiology Laboratory. (2) Students will receive no credit for 132L after taking Molecular and Cell Biology 32L or 136L, or if currently enrolled in similar courses. Three hours of laboratory per week. Prerequisites: Previous or concurrent enrollment in 132 or equivalent, or consent of instructor. In the laboratory component of Integrative Biology 132, students will study systems related to measuring physiological parameters, interpreting physiological data, designing experiments, and communicating ideas in writing and orally. Guided investigations include measurement of electrical potentials, responses of skeletal muscle to electrical stimulation, electromyography, pulmonary and cardiovascular measurements in humans, contractility and regulation of the frog heart, human electrocardiography, and renal control of body fluids. In two independent investigations, students identify their own questions, develop hypotheses, design and perform experiments, and present their studies in a final in elements of human physiology, data analysis, and oral presentation are also provided. (SP) Brooks, Kauer, Lehman

133. Anatomy Enrichment Program. (2) Course may be repeated for credit. Fieldwork—minimum of four hours per week arranged. Must be taken on a pass/no pass basis. Prerequisites: 131 with a grade of A or B. The purpose of the course is for University students to teach human anatomy to grades K-7 in the public schools. The UCB students work in groups of six or eight with classes of 40 students of the body and then enter the school rooms to teach what they have learned in 131. (SP) Diamond

135. The Mechanics of Organisms. (4) Three hours of lecture and one hour of discussion per week. Pre-requisites: Introductory physics and biology recommended. Deductive terms of mechanical principles; basics of fluid and solid mechanics with examples of their biological implications, stressing the dependence of mechanical behavior and locomotion on the structure of molecules, tissues, structural elements, whole animal systems. Offered alternate years. (F) Dudley, Full, Koehl

135L. Laboratory in the Mechanics of Organisms. (3) Six hours of laboratory and one hour of discussion per week, plus one field trip. Prerequisites: 135 (may be taken concurrently) or consent of instructor. Introduction to biomechanics by the biomechanics of animals and plants using fundamental biomedical techniques and equipment. Course has a series of rotations involving students in experimenting and designing experiments that can be used to discover the way in which diverse organisms move and interact with their physical environment. The laboratories emphasize sampling using a variety of methods and statistical interpretation of results. Latter third of course devoted to independent research projects. Written reports and class presentation of project results are required. (SP) Dudley, Full, Koehl

137. General Endocrinology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B; human physiology (132) strongly recommended. Course will address the role of hormones in physiology with a focus on humans. Regulation of endocrine systems and mechanisms of hormone action will be discussed. Physiological processes to be addressed include reproduction, metabolism, water balance, growth, fetal development. Two hours of lecture and one hour of discussion per week. (F) Hayes

138. Comparative Endocrinology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B. Organic Chemistry recommended. The primary goal of this course is to provide students with a broad understanding of the evolution of hormonal systems. A comparative approach allows us to envision how the complex mammalian endocrine system presumably evolved from that of more primitive vertebrates. Topics include endocrine pathways and endocrine-based behaviors of jawless fishes, fishes, amphibians, reptiles, birds, and mammals. In addition, students will gain an understanding of the experimental methods used in endocrine research. The class teaches students how to read and interpret the primary scientific literature; thus it encourages the critical thinking that is a fundamental skill for any scientist. (F) Bentley

140. Biology and Sociobiology of Human Reproduction. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: A course in physiology (e.g., 132, Molecular and Cell Biology 32, or consent of instructor). Evolution of human reproduction, social problems and demographic aspects, anatomy and physiology of reproductive organs, endocrinology of the menstrual cycle, puberty, psycho-physiology of copulation and orgasm; fertilization and implantation infertility and sexual dysfunction; conception and contraception; pregnancy and abortion; birth and lactation; sexual differentiation of brain and reproductive organs, homosexuality and transsexuality. (SP) Card, Eber

141. Introduction to Human Osteology. (6) Six hours of lecture and 14 hours of laboratory per week. Prerequisites: Anthropology 1, Biology 1B. An intensive study of the human skeleton, reconstruction of individual and population characteristics, emphasizing methodology and analysis of human populations from archaeological and paleontological contexts, taphonomy, and paleopathology. Also listed as Anthropology C103. Offered alternate years. (SP) White

143A. Biological Clocks: Physiology and Behavior. (2) Two hours of lecture and one hour of discussion per week. Prerequisites: Completion of biological prerequisites for the major and consent of instructor; a course in mammalian physiology recommended. This course provides a comprehensive overview of the mechanisms of periodicity beginning with hormone production and actions on target organs and continuing with an exploration of a variety of behaviors and their hormonal and nervous system consequences. The course uses a deconstructive approach to examine the reciprocal interactions between the neuroendocrine system and behavior, considering the effects of hormone on development and adult behavior. This course emphasizes understanding of basic behavioral principles, serves as the foundation for advanced courses in behavior offered through Integrative Biology. Three midterms and a cumulative final exam. Also listed as Psychology C115B. Caldwell, Lacey, Bentley

144. Animal Behavior. (4) Students will receive no credit for C144 after taking C146 or 146L. Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B or Environmental Science, Policy, and Management 140. Molecular and Cell Biology 142, 146 recommended. Formerly Psychology 115SB. An introduction to the study of animal behavior in an evolutionary context. Topics covered include the genetic, physiological, ecological, and cognitive basis for animal behavior. This course emphasizes conceptual understanding of basic behavioral principles, serves as the foundation for advanced courses in behavior offered through Integrative Biology. There are no prerequisites for the major and one of the following: Psych C116. (SP) Kriegsfeld

146. Behavioral Ecology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: C144. An in-depth examination of the ecological and evolutionary bases for behavioral diversity. Topics covered include behavior as an adaptive response, sexual selection, animal mating systems, group living, and cooperative and competitive interactions. Current conceptual approaches to these topics are explored, with an emphasis upon rigorous testing of hypotheses drawn from the primary literature. Discussion sections are used to explore selected topics in greater depth. Students are encouraged to form study groups. This course emphasizes understanding of basic behavioral principles, serves as the foundation for advanced courses in behavioral ecology. There are no prerequisites for the major. Three midterms and a cumulative discussion-based written assignments. Offered alternate years. (SP) Lacey

146L. Behavioral Ecology Laboratory. (2) Three hours of laboratory per week, plus one weekend field trip. Prerequisites: C144 or consent of instructor. Concurrent enrollment in 146. Hands-on training in the methods of experimental design, data collection, and data analysis currently used in behavioral research. In addition to structured laboratory activities, students design and execute multi-week studies on topics such as resource competition, mate choice, and alloparental care. Laboratory reports must include written assignments. Offered alternate years. (SP) Lacey

148. Comparative Animal Physiology. (3) Students will receive no credit for 148 after taking 100A. Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B. Comparative study of physiological systems among animal phyla. General physiological principles will be emphasized, including variation in neural, muscular, endocrine, cardiovascular, respiratory, digestive, and osmoregulatory systems. Students will read original literature and give a group presentation in a symposium in alternate years. (F) Full, Dudley, Koehl

C149. Molecular Ecology. (4) Students will receive no credit for C149 if they took 149 prior to spring 2003. Three hours of lecture and one hour of discussion per week. Prerequisites: C183, 161, or Molecular and Cell
Biology C142 (may be taken concurrently), or consent of instructor. Formerly 149. This course focuses on the use of molecular genetic information in ecology. Approached from a genomics perspective, covered range of DNA fingerprinting and multilocus genetic analysis through gene flow, biogeographic history and community composition (community ecology) to the evolution of ecosystems over the past 10,000 years. Manipulation of plant and animal populations, deforestation, cycles of erosion and desertification, faunal extinction and resource impacts on human landscapes. We will explore the importance of agricultural history and domestication of plants and animals, and development of agriculturally based societies in the early modification of Earth’s ecosystems will be examined for intensive agriculture, and similar kinds of human depression, permanent rearrangement of landscapes and desertification, faunal extinction and resource acquisition and distribution genetics. Will study methods and data from archaeology, palynology, geomorphology, and paleoecology to medical, agricultural, conservational, and theoretical approaches to studying evolution in natural populations, including analyzing heritability of ecologically important traits, using molecular techniques to decompose the magnitude of selection in natural systems, and using models to predict evolution in natural populations. Case studies are used to examine evolutionary effects of ecological interactions, the importance of population size and structure, and interactions among populations through migration and dispersal. (F) Simms

164. Human Genetics and Genomics. (4) Two hours of lecture and two hours of computer laboratory per week. Prerequisites: Biology 1A-B, 16A, or equivalent. This course will introduce students to basic principles of genetics, including transmissions genetics, gene regulation, pedigree analysis, genetic mapping, population genetics, and the principles of molecular evolution. The course will also introduce students to recent developments in genomics as applied to problems in human genetic disease. (SP) Barnosky, Nielsen, Slatkin

165. Introduction to Quantitative Genetics. (4) Two hours of lecture, one hour of discussion, and one hour of computer laboratory per week. Prerequisites: Biology 1A-B, 16A, or equivalent. This course will introduce students to basic principles of genetics, including transmissions genetics, gene regulation, pedigree analysis, genetic mapping, population genetics, and the principles of molecular evolution. The course will also introduce students to recent developments in genomics as applied to problems in human genetic disease. (SP) Barnosky, Nielsen, Slatkin

166. Evolutionary Biogeography. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B, 11, Geography 148 or Earth and Planetary Science 50. The goals of the course are to: (a) examine how phylogenetically linked characteristics of species influence their potential for evolution and extinction; and (b) provide an overview of the analytical techniques and applications for studying the interplay between geographic ranges, environment, evolution, and extinction. Accordingly, the course begins by examining what geographic ranges of species are and what controls them. We then will explore the biogeographic range limits of a variety of characteristics and the roles that species play in structuring natural communities. Observational, experimental, and theoretical approaches to population and community ecology will be discussed. Topics will include quantitative approaches relying on allele graph analysis, and elementary calculation. Discussion section will review recent literature in ecology. (F) Power, Ackery

167. Astrobiology. (3) Three hours of lecture per week. Formerly Letters and Science 117. The course covers scientific search for life on the Universe, including science philosophy and process; the public’s view of science and the paranormal; support of the search; planetary formation; history of the solar system and the planets and satellites; earth history and the history of life on earth as revealed in molecular and paleontological data; the processes of biological evolution; and the possible role of extraterrestrial life in evolution. A critical evaluation of supposed indications of extraterrestrial life; and the ethical and theological conservation/ protection issues of planetary exploration. (SP) Barnosky

151. Plant Physiological Ecology. (3) Three hours of lecture per week. Prerequisites: Biology 1B or consent of instructor. Formerly 151L. The purpose of the laboratory is to allow you to become familiar with the approaches and methodology used in plant physiology ecology. The course will introduce students to a number of techniques and make measurements on different plant species growing in the field or greenhouse. Offered alternate odd years. (SP) Dawson

152. Environmental Toxicology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B or Anthropology 2 recommended. This course will introduce you to the environmental fate and effect of toxic substances from human activities, with emphasis on aquatic systems, including their biological effects on the basis of their molecular to the community level. Course will review pollutant types, principal sources, impacts on aquatic organisms, packaging approaches, and regulatory issues. (SP) Weston

153. Population and Community Ecology. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B or consent of instructor. Principles of microbial, animal, and plant population ecology, illustrated with examples from marine, fresh-water, and terrestrial habitats. Consideration of the roles of physical and biological processes in structuring natural communities. Observational, experimental, and theoretical approaches to population and community ecology will be discussed. Topics will include quantitative approaches relying on allele graph analysis, and elementary calculation. Discussion section will review recent literature in ecology. (F) Power, Ackery

154. Plant Ecology. (3) Three hours of lecture/discussion per week. Prerequisites: Biology 1B. Environment in accompanying lab course 154L is encouraged but not required. An introduction to ecology of plants, covering individual populations, communities, and global processes. Topics include: form and function, population ecology, life histories, community structure and dynamics, disturbance and succession, diversity and global change. (F) Ackery

155. Holocene Paleoecology: How Humans Changed the Earth. (3) Three hours of lecture per week. Prerequisites: Anthropology 2 required. Since the end of the Pleistocene and especially with the domestication of plants and animals, development of agriculturally based societies in the early Holocene (ca. 10,000 years ago) has had cumulative and often irreversible impacts on natural landscapes and biotic resources worldwide. Thus “global change” and the biodiversity crisis are not exclusively developments of the industrial and post-industrial world. This course uses a multi-disciplinary approach, drawing upon methods and data from archaeology, palynology, geomorphology, paleontology, and historical ecology to explore recent human impacts on biogeography and ecosystems over the past 10,000 years. Manipulation of plant and animal populations, deforestation, cycles of erosion and desertification, faunal extinction and resource impacts on human landscapes. We will explore the importance of agricultural history and domestication of plants and animals, and development of agriculturally based societies in the early modification of Earth’s ecosystems will be examined for intensive agriculture, and similar kinds of human depression, permanent rearrangement of landscapes and desertification, faunal extinction and resource acquisition and distribution genetics. Will study methods and data from archaeology, palynology, geomorphology, and paleoecology to medical, agricultural, conservational, and theoretical approaches to studying evolution in natural populations, including analyzing heritability of ecologically important traits, using molecular techniques to decompose the magnitude of selection in natural systems, and using models to predict evolution in natural populations. Case studies are used to examine evolutionary effects of ecological interactions, the importance of population size and structure, and interactions among populations through migration and dispersal. (F) Simms

156. Principles of Conservation Biology. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: Biology 1A-B or Anthropology 2 recommended. This course will introduce students to basic principles of genetics, including transmissions genetics, gene regulation, pedigree analysis, genetic mapping, population genetics, and the principles of molecular evolution. The course will also introduce students to recent developments in genomics as applied to problems in human genetic disease. (SP) Barnosky, Nielsen, Slatkin

157L. Ecosystems of California. (4) Six hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B or consent of instructor. Formerly 155L. The ecosystems of California are studied from both an ecological and historical biogeographical perspective with a focus on the importance of interactions between humans and nature. We will identify about 150 species of native plants (mostly trees but also other dominant plants from the nonforest biomes). Field trips occur each Friday and over the summer. Projects will involve the collection of plant inventories and data collection, as well as how to collect plant specimens and use the Herbarium. (SP) Fine

158. Plant Physiological Ecology Laboratory. (2) Five hours of laboratory per week. Prerequisites: Biology 1B. Offered alternate odd years. (SP) Dawson

161. Population and Evolutionary Genetics. (4) Three hours of lecture and two hours of computer and/or discussion per week. Prerequisites: Biology 1B and Mathematics 16A or equivalent. Population genetics provides the theoretical foundation for modern evolutionary thinking. It also provides a basis for understanding genetic variation within populations. We will study population genetic theory and use it to illuminate a number of different topics, including the existence of sex, altruism, and cooperation and the genome evolution; specialisation, and human genetic variation and evolution. (SP) Nelson

162. Ecological Genetics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1B. This course integrates ecology, genetics, and evolutionary biology. It presents contemporary approaches to studying evolution in natural populations, including analyzing heritability of ecologically important traits, using molecular techniques to decompose the magnitude of selection in natural systems, and using models to predict evolution in natural populations. Case studies are used to examine evolutionary effects of ecological interactions, the importance of population size and structure, and interactions among populations through migration and dispersal. (F) Simms
bottanical systems. An outline of the major group of vascular plants and their evolution. (SP) Baldwin

168L. Systematics of Vascular Plants Laboratory. (2) Six hours of laboratory per week. Prerequisites: Biology 1A-1B, 168 (must be taken concurrently). A laboratory course on a world-wide basis. Topics will be selected from among the various groups of plants. The laboratory will be arranged so that any student may work at his own pace. (SP) Baldwin

173. Mammalogy Laboratory. (3) Six hours of laboratory per week, plus two weekend field trips. Prerequisites: 104, 173 (must be taken concurrently). Formerly Zoology 183. Must be taken concurrently with 173. An advanced laboratory and field course that explores the biology of modern mammals. Labs make use of the extensive collections of the Museum of Vertebrate Zoology to introduce students to mammalian diversity in a phylogenetic context. Field trips provide experience with the methods used to study mammal communities in their natural environments. Two lab practicals, plus multiple short quizzes. Offered alternate years. (SP) Lacey

174. Ornithology. (2) Two hours of lecture per week. Prerequisites: 104 or consent of instructor. An advanced course in the biology of birds. Offered alternate years. (SP) Bone

174L. Ornithology Laboratory. (2) Six hours of laboratory per week, plus one weekend field trip. Prerequisites: Must be taken concurrently with 174. An introduction to the diversity, morphology, and general ecology of birds of the world. Offered alternate years. (SP) Lacey

175. Herpetology. (2) Two hours of lecture per week. Prerequisites: 104, 175L (must be taken concurrently). Lectures and assigned readings will introduce students to the diversity of amphibians and reptiles on a world-wide basis, with emphasis on systematics, ecology, morphology, and life history. Grade is based on joint work in 175 and 175L and includes three lecture exams, two laboratory exams (midterm, final), lab quizzes, and an independent research paper. Offered alternate years. (SP) McGuire

175L. Herpetology Laboratory. (2) Four hours of laboratory per week, plus two field trips. Prerequisites: 104. Must be taken concurrently with 175. Formerly Zoology 185. Laboratories will teach students the diagnosis and classification of some functional attributes of amphibians and reptiles on a world-wide basis. Field trips will acquaint students with techniques for collecting, preserving, identifying, and studying amphibians and reptiles. Offered alternate years. (SP) McGuire

183. Evolution of the Vertebrates. (3) Must be taken concurrently with 183L. Three hours of lecture per week. Prerequisites: Biology 1B; introductory courses in earth history and zoology are recommended. Formerly lecture portion of Paleontology 125. An introduction to vertebrate paleontology, focusing on the history and phylogeny of vertebrates ranging from fishes to humans. Emphasis on evolution, taxonomy, functional morphology, faunas through time, and problems in vertebrate history, including diversity through time and extinction. (SP) Padian

183L. Laboratory in Vertebrate Evolution. (1) Must be taken concurrently with 183. Two hours of laboratory per week. Prerequisites: Biology 1B; introductory courses in vertebrate zoology recommended. Formerly laboratory portion of Paleontology 125. An introduction to vertebrate fossils, focusing on demonstration and study of problems related to taxonomy, evolution, functional morphology, structure, and preservation of fossil vertebrates and their faunas through time. Offered alternate years. (SP) Baldwin

184. Morphology of the Vertebrate Skeleton. (2) Two hours of lecture per week. Prerequisites: 30, 33, or 34, Biology 1B or Anthropology 1. Must be taken concurrently with 184L. Formerly Paleontology 126. Laboratory on comparative osteology of vertebrates emphasizing selected groups and the vertebrate skeleton. Offered alternate years.

C185. Human Paleontology. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Anthropology 1, Biology 1A-1B, Origin and relationships of the extinct forms of mankind. Also listed as Anthropology C100. Offered alternate years. (SP) White

187. Human Biogeography of the Pacific. (3) Three hours of lecture per week. Prerequisites: Biology 1B strongly recommended. This course will focus on where Homo sapiens have mastered an equivalent set of basic concepts in evolution and ecology. Modern Homo sapiens began crossing the water barrier into Wallacea and Australia and New Guinea at least 40,000 years ago. Ultimately, populations of H. sapiens spread all the way across the Pacific to colonize virtually every habitable island. This course examines this remarkable history of dispersal and expansion from the perspectives of biogeography and evolutionary ecology. H. sapiens, like any other species, faced problems of dispersal, colonization, and potential extinction, and adopted strategies to the diversity of insular ecosystems encountered. For humans, it is necessary to use a dual evolutionary model that takes into account cultural evolution and the transmission of cultural traits. This course also explores the impacts of human populations on the isolated and often fragile natural ecosystems of oceanic islands, and the reciprocal effects of anthropogenic change on human cultures. (F) Kirch

194. Undergraduate Student Instructor for Integrative Biology Courses. (1-3) Course may be repeated for credit. Three to four hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: May be taken in either order or alone. Offered odd-numbered years. (SP) Mishler, Lindberg, Will

200A. Principles of Phylogenetics: Systematics. (4) Four hours of lecture and three hours of laboratory per week. The core theory and methodology for phylogenetic systematics with emphasis on both morphology and molecules, and both living and fossil organisms. Topics include phylogeny, character optimization strategies for finding best trees, and a brief introduction to comparative methods. Laboratories are closely integrated with lectures and cover the major algorithms and software. Requirements include a practical term project. Note: This course and 200A may be taken in either order or alone. Offered even-numbered years. (SP) Mishler, Ackery, Lindberg

C204. Research Reviews in Animal Behavior: Behavior Review. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Prerequisites: Graduate standing, basic course in animal behavior, and consent of instructor. This course will discuss current publications in animal behavior. A student will summarize a paper and lead the discussion that follows. Occasionally, the group reviews a manuscript in preparation, or a thesis proposal. Not all participants need report, but all are expected to attend and enter into the discussions. Guest lecturers are invited each semester. Also listed as Environ Sci, Policy, and Management C204 and Psychology C204. (F,SP) Staff

C205. Quantitative Methods for Ecological and Environmental Modeling. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will cover the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include: linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management. Also listed as Environ Sci, Policy, and Management C205 and Energy and Resources Group C205. (F) Staff

206. Statistical Phylogenetics. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will review the background mathematics and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include: linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management. Also listed as Environ Sci, Policy, and Management C205 and Energy and Resources Group C205. (F) Staff

H196A-H196B. Thesis Course. (3-3) Course may be repeated for credit. Individually arranged. Prerequisites: Open only to students in Honors Program. Individual study and research for at least one academic year on a special problem to be chosen in consultation with a supervising committee. Preparation of the thesis on broader aspects of this work. (F,SP) Staff

197. Supervised Field Studies By Upper Division Students. (1-4) Course may be repeated for credit. Meetings with instructor. Must be taken on a passed/not passed basis. Formerly Paleontology 197, Zoology 197. Supervised experience in off-campus fieldwork. Regular meetings with instructor and written report. (F,SP) Staff

198. Supervised Group Study and Research By Upper Division Students. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Undergraduate research by small groups. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Must be taken on a passed/not passed basis. Prerequisites: Background courses in chosen subjects. Enrollment restrictions apply; see department. (F,SP) Staff
per week. Prerequisites: Graduate standing or upper division undergraduate with consent of instructor. Synopsis of modern research on the molecular genetics of development and evolution. Topics include the evolution of animals, the evolution of body plan, the role of transcriptional regulation in morphological evolution, and genome evolution. Also listed as Molecular and Cell Biology C245. (F,SP) King, Levine, Pater.

286. Seminar in Evolution above the Species Level. (3-6) Course may be repeated for credit. Two hours of seminar per week. Formerly Paleontology 246. Current issues in macroevolution and paleobiology, using both neontological and palaeontological data. Offered alternate year. F,SP (Faculty)

280. Seminar in Paleontological Research. (1) One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing; consent of instructor. Presentation of results of original research by students, faculty, and visitors. (F,SP) Padian

281. Seminar in Evolution. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Advanced study and current literature in various fields of evolution. Topics vary from year to year. (F,SP) Padian

282. Seminar in Vertebrate Evolution and Paleontology. (1) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One hour of seminar per week. Prerequisites: 183, 183L or consent of instructor. Presentations and discussions of original research and new literature in vertebrate palaeontology. Syllabus and reading list will vary as topics change from semester to semester. Open to undergraduate students with permission. Enrollment limit: 25. (F,SP) Padian

286. Seminars in Paleontology. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly Paleontology 250 Advanced study and current literature in various fields of paleontology. Topics vary from year to year. (F,SP) Staff

290. Research Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly Botany 290 and Zoology 290. Advanced study in various fields of integrative biology. Topics will be announced in advance of each semester. Enrollment in more than one section permitted. (F,SP) Staff

291. Research Seminar. (1) Course may be repeated for credit. Two hours of seminar for seven and one-half weeks. Must be taken on a satisfactory/unsatisfactory basis. Formerly Paleontology 250 Advanced study and current literature in various fields of paleontology. Topics vary from year to year. (F,SP) Staff

293. Integrative Biology Colloquium. One hour of meeting per week. Formerly Botany 280. Meetings for the presentation of original work by faculty, visiting lecturers, and graduate students. (F,SP) Staff

296. Special Study for Graduate Students. (1-4) Course may be repeated for credit. Individual conferences. Formerly Zoology 296. Reading or other advanced study by arrangement with a staff member. (F,SP) Staff

297. Directed Field Studies. (1-8) Course may be repeated for credit. Credit will be awarded according to work planned and accomplished. (F,SP) Staff

299. Graduate Research. (1-12) Course may be repeated for credit. Individual study. Must be taken on a satisfactory/unsatisfactory basis. Formerly Botany 299, Paleontology 299, Physiology 299, Anatomy 299, Zoology 299. Credit awarded according to work planned and accomplished. (F,SP) Staff

601. Individual Study for Master's Students. (1-8) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Formerly Anatomy 601, Zoology 601. Individual study for the comprehensive requirements in consultation with the major adviser. Units may not be used to meet either unit or residence requirements for a master’s degree. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Formerly Anatomy 602, Botany 602, Physiology 602. Individual study in consultation with the major adviser. Intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D. (F,SP) Staff

Professional Courses

303. Teaching Colloquium: Graduate Student Instructor Training. (2) Two hours of seminar plus workshops per week. Must be taken on a satisfactory/unsatisfactory basis. Series of workshops and writing, giving talks, training graduate students and faculty participation. The main objectives of this course are to train graduate students to become effective instructors and to discuss important issues that graduate students face when teaching undergraduate classes. (F,SP) Staff

304. Dissemination of Research: Your Interface with the Public. (2) Two hours of lecture/discussion per week. This course will consist of lectures and class discussions about mechanisms of communicating about science to the public. We will consider how to convey the issues, process, and findings of scientific research to a variety of audiences using different media (e.g., posters, web pages, newsletters, newspapers, and magazine articles, books, television). Projects conducted by teams of students under the direct supervision of the instructors will include preparation of outreach materials (e.g., posters, newsletters, web pages). (F,SP) Staff

305. Academic Survival. (2) Two hours of seminar per week and assignments. Must be taken on a satisfactory/unsatisfactory basis. Series of lectures and workshops to prepare graduate students for many aspects of academic careers, including grant proposal writing, teaching, publication, preparing job applications and having job interviews, advising graduate students and postdocs, reviewing manuscripts and grant proposals, service activities, and other aspects of a career in higher education. (SP) Staff

400. Training in Stable Isotope Methods and Mass Spectrometry. (1) Three hours of lecture and laboratory training per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. An intensive lecture and laboratory training course on the fundamental principles and practical applications of stable isotope methods in biogeochemistry, ecology, physiology, and environmental science. Topics covered include stable isotope tracer techniques, isotope effects, and applications of modern stable isotope analysis. Laboratory training is included. (F,SP) Staff

Faculty: A list of faculty advisers is available in the main office or on the Interdisciplinary Studies web site. Student Affairs Officer: Dawn Strouth

The Interdisciplinary Studies Field (ISF) Major

Note: Please go to ls.berkeley.edu/ugis/isf for the most up-to-date information about the major.

The ISF major offers students the opportunity to develop an individualized research program. With the help of an ISF faculty adviser, students use courses from the social sciences, the professional schools and colleges or the humanities in order to pursue their research. Typically, students select courses from three disciplines. In addition, the ISF major offers a capstone experience in which all students will research and write a substantive thesis.
The research program must meet three criteria:

- First, it must be interdisciplinary. This means that the research area must integrate approaches from at least three fields or disciplines. The principle of integration can be comparative, transnational, historical, or thematic.
- Second, the research area must not replicate an existing major. The purpose of the ISF major is to enable research interests of undergraduates in areas in which no formal program exists.
- Third, the area of research must be feasible. Each student's proposed research program must be discussed with a faculty adviser to make sure that the range and number of courses required will be available.

The field major is administered by a faculty advisory committee and is one of the programs of the Office of Undergraduate and Interdisciplinary Studies.

Admission to the Major. Students should apply to the major before or during the first semester of their junior year. Students will be considered for the Interdisciplinary Studies Field major on the basis of the appropriateness of their proposed area of research, the quality of their previous work in relevant courses, and their overall promise for interdisciplinary work. Candidates for the major should submit a written individual research proposal with an ISF faculty member before submitting an application. Applications will be accepted throughout the semester.

Lower Division Requirements. One year (two courses) of World Civilization. Courses that may be used to fulfill the requirement are listed in the ISF student handbook, which is available on the ISF web page or outside 301 Campbell Hall. World Civilization equivalents may be discussed with ISF faculty advisors. The World Civilization requirement must be taken for a letter grade.

Upper Division Requirements. 30 units distributed among the following:

(1) Area of Research. A minimum of 20 units (at least six courses) drawn from at least three fields or disciplines. Examples of research areas are available in the ISF student handbook. Courses for this requirement must be upper division, i.e., numbered 100 or above.

(2) Core Theory and Methodology Courses. Students in the major take ISF 100A, Introduction to Social Theory and Cultural Analysis. In addition, students choose three courses from the following three courses: ISF 100B, Introduction to Social Theory and Cultural Analysis; ISF 100C, Word and Image; ISF 100D, Introduction to Technology, Society and Culture. The Globalization of Rights, Values, and Laws in the 21st Century.

(3) Thesis Requirement. ISF 190, Senior Thesis. Research and writing of a senior thesis (30-40 pages) that pertains to the student's area of research.

(4) Research Requirement in the Honors Program. ISF 195, Senior Honors Thesis. Requirements for graduation in the honors program include: (1) 3.5 overall GPA and 3.6 in ISF, (2) successful completion of honors thesis (60-80 pages). Honors candidates will submit their thesis advisors a detailed research proposal with a substantive bibliography. Honors candidates will also contact an additional Berkeley faculty member or an appropriate member of the ISF advisory board for purposes of advising and evaluating the completed honors thesis.

Lower Division Courses

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of seminar per week for 15 weeks. One and one-half hours of seminar per week for eight weeks. Three hours of seminar per week for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Prerequisites: At discretion of instructor. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and upperclassmen.

100A. Introduction to Social Theory and Cultural Analysis. (3) Three hours of lecture per week. Introduction to central theoretical investigations concerning the construction and organization of social life. Using some of the “classics” in social theory as well as some examples of contemporary analysis, this course will explore such topics as the nature of power and social/historical change, the nature of economic production and consumption, the meaning of difference—racial, sexual, class—the development of institutions, etc. (F,SP)

100B. Introduction to Social Theory and Cultural Analysis. (4) Three hours of lecture per week. Introduction to classical and contemporary analyses of the development and construction of individual identity, the concepts of subjectivity and agency, and notions about the inner life. An exploration of the construction of meaning and communication through an examination of works from discourse analysis, symbolic anthropology, literary and film studies. (F,SP)

C100C. Word and Image. (4) Three hours of lecture per week. This course is designed to sharpen our skills in understanding what happens when the world of images and words meet. Starting with the work of the Western classical tradition, we will proceed to investigate how word/image constellations operate in a variety of media, including sculpture and poetry, painting and prose, death masks, tableaux vivants, photography, and advertising. Also listed as Scandinavian C114. Sanders.

100D. Introduction to Technology, Society, and Culture. (4) Three to four hours of lecture and zero to one hour of discussion per week. This course surveys the technological revolutions of the 19th and 20th centuries, the rise and rise of the computer and the Internet. The final part examines the impact of the Internet on social movements. (F,SP)

100E. The Globalization of Rights, Values, and Laws in the 21st Century. (4) Three hours of lecture per week. This interdisciplinary course is an introduction to the complex interplay of transnational values, international rights and legal institutions that frame the way governments and geopolitical interactions in our contemporary world. Theoretical and methodological tools from the social sciences, jurisprudence, and philosophy will be applied in the analyses of these interplays. A study of rights and freedoms will examine the role of the international organizations in the world. (F,SP)

100F. Theorizing Modern Capitalism: Controversies and Interpretations. (4) Four hours of lecture per week. This course will focus on various ways the nature and trajectory of modern capitalism have been interpreted. We will be interested in exploring the post-Marxist works of analysis. The initial focal point will be on the work of Max Weber and Joseph Schumpeter, as well as important current debates in eco-nomics, history and sociology by our classmates. Both Weber and Schumpeter display a strong fascination and elaboration with the work of Marx. The way they analyze Marx is very revealing about the transnational, comparative work of commodity analysts seeking to understand the capitalist system. We will also consider a number of...
of current efforts that look at the systemic nature of capitalism. In particular, we are interested in how eco-
nomists now see the development of capi-
talism. We are interested in how the Weberian tradition in terms of the role of culture in shaping economic behavior. Debates about the nature of globalization will also be considered, as well as analysis of the changing nature of work. (F,SP) Klee

C101. Economic Geography of the Industrial World. (4) A prerequisite of C101 after taking Geography 110, C110, or Interdisciplinary Studies 100A. Three hours of lecture and one hour of discussion per week. Prerequisites: Geography 20 or prior coursework in economic or regional development. The preparation and presen-
tation of a senior thesis pertaining to the student's individual area of concentration within the interdisci-
A preliminary but solid bibliography. The preparation and presen-
tation of a senior thesis pertaining to the student’s individual area of concentration within the interdisci-
C160 and American Studies C160. (F,SP)

C145. Multicultural Europe, (4) Three hours of lec-
ture per week. Formerly Interdisciplinary Field Studies 145. In this course, we will trace some of the sub-
stantive changes and transformations taking place in contemporary Europe in the areas of culture, society, and politics. In particular, we will look at the effects of massive migration flows—due to globalization pro-
cesses—on the national culture of the core countries and examine the ways in which particular nation-
cultures and multicultures of Europe. The goal of the course is, first of all, to famili-
aryl students with a variety of cultural, social, and political innovations that accompany the formation of multicultures.

C155. Social Implications of Computer Technol-
ogy. (2) Three hours of lecture/discussion per week. Must be taken on a passed/not passed basis. Topics include: electronic community; the changing nature of work; technological risks; the information economy; intellectual property; privacy; artificial intelligence; and the sense of self; pornography and censorship; pro-

C184. The Information Revolution in Business and Society. (3) Three hours of lecture per week. Prerequisites: Upper-level undergraduates. In the last decade, information technology (IT) has moved from back-office applications aimed at improving produc-
tivity to strategic applications that can radically change the dynamics of companies, industries, and economic sectors. This course will explore the technological, economic, and social conditions that have made such “killer apps” possible. Students will learn how to think strategically and entrepreneurially about IT, whether for personal, business, or nonprofit applications.

C188. Preliminary Thesis Preparation. (2) Two hours of lecture/discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Declared ISF majors only. This is a recommended course for ISF majors. Students will develop a proposal for the senior thesis, locate research sources on campus, engage in preliminary research on their thesis topic, and develop a preliminary but solid bibliography.

C190. Senior Thesis. (4) Two hours of seminar per week, plus individual conferences. Prerequisites: Senior standing; completion of ISF core courses; declared in the major. The preparation and presen-
tation of a senior thesis pertaining to the student’s individual area of concentration within the interdisci-

H195. Honors Thesis. (4) Two hours of seminar per week plus individual conferences. Prerequisites: Senior in the honors program; completion of ISF core courses; declared in the major; 3.5 GPA overall and in the major. Entails writing a bachelor’s thesis pertaining to the major. The student will write an introductory chapter to the senior thesis. Students who write honors theses will also contact faculty on campus who have expertise in the students’ research area. (F,SP)

C199. Supervised Independent Study and Research for Upper Division Majors. (1-4) Course may be repeated for credit. Course may be taken on a passed/not passed basis. Prerequisites: Regulations set by the College of Letters and Science. Formerly Social Sciences 198 and Humanities 198. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from semester to semester.

C214. The Information Revolution in Business and Society (Graduate Division) Program Office: 101 Stephens Hall, lasma@berkeley.edu, (510) 642-4406, laisp.berkeley.edu Chair: Ananya Roy (City and Regional Planning)

GPP Office: 101 Stephens Hall, gppminor@berkeley.edu, (510) 643-3185 blumcenter.berkeley.edu/undergraduate-minor-program Chair: Ananya Roy (City and Regional Planning)

Overview
International and Area Studies attempts to enhance the educational experience at the undergraduate and graduate levels. The courses IAS offers are interdisciplinary, international, and centrally focused, and address timely and relevant issues not generally covered in existing campus courses. The courses are designed to be of interest to students of all majors. Since the course topics change from semester to semester, please consult with the program web site regarding the current offerings.

Graduate Program
Advisors Vinod K. Aggarwal (Political Science), Nezar Alsayyad (Architecture), Max Auhammer (Environmental Science and Resources), and Rachel Austin (Social Welfare), Jill Duerr Berrick (Social Welfare), Richard Buchbaum (Law), Margaret Chowning (History), David Cohen (Classics/Rhetoric), David Collin (Political Science), Alan de Janvry (Agriculture and Resource Economics), Brad Delong (Economics), Louise Fortmann (Envi-
ronmental Science, Policy, and Management), Thomas Gold (Sociology), Gillian Hart (Geography), Ron Hassner (Political Science), John Lie (Sociology), James Midgley (Social Welfare), Edward Miguel (Economics), Michael Nacht (Public Health), Geoff Onia (Anthropology), Francesco A. Ricciardelli (Sociology), Ananya Roy (City and Regional Plan-
ing), Elisabeth Sadaoulet (Agriculture and Re-
sources Economics), Eric Suter (Public Health), David Vogel (Business), Bonnie Wade (Music), Michael Watts (Geography), Steve Weber (Political Science)

M.A. Degree. The M.A. Degree Program in inter-
national and area studies is a one- to two-year mas-
ter’s program for students already multicultu-
lated in one of Berkeley’s professional or academic graduate programs. A broadly defined and inter-
disciplinary program, it is designed to complement other graduate programs by providing the foun-
damentals of contemporary international issues and detailed knowledge of particular world regions or countries. Students tailor the content of their pro-
gram from a defined framework of electives.

Eligibility. Any Berkeley student currently enrolled in a master’s or Ph.D. program is eligible to apply. Students must have at least one year remaining in their current degree program and must be able to demonstrate proficiency in a modern foreign lan-
guage relevant to the focus of the program of study equivalent to the completion of four semesters of college-level instruction in French, German, or Spanish.

Courses. Students in the M.A. program concen-
trate their coursework in one of two ways—topical or area. Topic-oriented coursework concentrates on selected aspects of current international affairs.

Area-oriented coursework focuses either on a major country or region of the world and usually has a strong historical or cultural dimension.

Each student must demonstrate a strong ground-
ing in economics and politics. Students who have not completed equivalent coursework before enter-
ning the program must take two intermediate-level economics courses, such as Economics 100A-
100B, Economic Analysis, Micro and Macro, and at least one graduate-level course in political science, such as Political Science 202A, Theories of Develop-
ment and Political Change; 205, The Nation-
Building Process; 209A, Comparative Political Economy; or 226A, International Political Economy.

Minimum Requirements for the Degree:
(1) A minimum of 24 units of coursework inde-
dependent of coursework undertaken for the master’s or Ph.D. degree is required. At least 12 units of which must be graduate-level work. All courses must be courses offered outside the professional school or department in which the student is con-
currently registered.

(2) Demonstrated proficiency in a modern foreign language relevant to the focus of the program of study equivalent to the completion of four college-
level semesters of basic language study. None of the courses taken to fulfill this requirement can be applied toward 24 units necessary for the degree. Up to 4 units of advanced language courses, if relevant to the focus of the student’s program, may count toward the degree.

(3) A comprehensive exam or thesis based on a student’s program of courses.
Undergraduate Minor in Global Poverty and Practice: The Global Poverty and Practice minor is an interdisciplinary curriculum designed to supplement the major field of study by training students in the study and analysis of global poverty. It provides an interdisciplinary framework integrating social, economic, political, and cultural skills, and creative opportunities necessary for students to participate in forms of practice in imaginary and practical ways. The minor explores the ethical and practical implications of the role that Berkeley undergraduates play in understanding and addressing some of the most pressing issues of the 21st century. Students from all disciplines are encouraged to undertake the minor.

Eligibility. All currently matriculated undergraduates majoring in a language or a field of study are eligible to apply. Students must be able to demonstrate their ability to complete all minor requirements within the established unit norms for their degree program.

Courses. Two courses are required for the minor: IAS 115, Global Poverty: Challenges and Hopes in the New Millennium and IAS 105, The Ethics, Methods, and Pragmatics of Global Practice. In addition, two directed electives are chosen in consultation with a faculty advisor. The program is completed by the student under the supervision of a minor advisor.

How to Apply. Students must submit an intent to declare a minor. The deadlines are November 1 and April 1 (or the closest business day preceding).

Lower Division Courses

20. Perspectives in International Education. (2) Three hours of lecture per week for eight weeks. Must be taken on a passed/not passed basis. Prerequisites: Freshman or sophomore standing. This course will examine developments in the field of international education in light of the achievement of the globalization of economies and the internationalization of cultural flows since the 1980s. In this context, the course will explore cross-cultural issues, economic trends, gender questions, and political considerations as they impinge upon international education programs. Particular attention will be given to the UC Education Abroad Program as a means of understanding the structure, scope, rationale, and characteristics of contemporary international education programs in the United States and corresponding institutions in Latin America, Africa, Asia, and Europe. (F,SP)

45. Survey of World History. (3) Three hours of lecture and one hour of discussion per week. This course focuses on benchmarks of the history of various national cultures. It begins with the ancient Greeks, Romans, and Chinese but emphasizes world developments since the 15th century. The purpose of the course is to better understand the rise and decline of states, empires, and international trading systems. Therefore, political and economic structures and developments as well as military factors will be presented along with the more traditional historical perspectives. (F,SP)

98. Issues in Political Economy and Development. (2) Two and one-half hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Sophomore standing. This course is geared towards intended Political Economy and Development Studies majors. It consists of a series of guest lectures presenting different issues and advances of the development of political economy and political development. Topics will be divided into three general sections: (1) theories on political economy and development; (2) historical background on the causes of political economy; and (3) political economy and development. Three discussion groups will be led by honors students. (SP)

Upper Division Courses

102. Scope and Methods of Research in International and Area Studies. (4) Three hours of lecture and one hour of discussion per week. Formerly Political Economy of Industrial Societies 102. Required prerequisite for all students intending to enroll in Development Studies H195 and Political Economy H195. Introduction to interdisciplinary research strategies for the collection, interpretation, and analysis of data. Course integrates the study of the fundamental theories of social science with the practical techniques of social science research methods. (F,SP)

H102. Scope and Methods of Research in International and Area Studies. (4) Students will receive credit for H102 and Political Economy 106. Three hours of lecture per week. Prerequisites: Open only to students meeting the requirements for participation and who intend to enroll in the honors seminar during the spring term. Consent of instructor. Formerly Political Economy 102. Required prerequisite for all students intending to enroll in Development Studies H195 and Political Economy H195. Introduction to interdisciplinary research strategies for the collection, interpretation, and analysis of data. Course integrates the study of the fundamental theories of social science with the practical techniques of social science research methods. (F,SP)

105. The Ethics, Methods, and Pragmatics of Global Practice. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. This course is interdisciplinary in character, inter-disciplinary in structure and content, and is designed to provide a vehicle to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to international and area studies. This course will provide an integrated overview of microeconomic theory focusing on economic growth and international economics. It covers a number of topics including history of economic growth, industrial revolution, post-industrial revolution divergence, flexible-price and sticky-price macroeconomics, and macroeconomic policy. Course is structured for majors in International and Area Studies and other non-economics social science majors. (F,SP) Hsieh

115. Global Poverty: Hopes and Challenges in the 21st Century. (4) Three hours of lecture per week. Prerequisites: Statistics 2 or equivalent. Formulation of a research hypothesis and definition of an empirical strategy. Regression analysis with cross-sectional and time-series data; econometric methods for the analysis of qualitative information resulting. The techniques of statistical and econometric analysis are developed through applications to a set of case studies and real data in the fields of environmental, regional, and international economics. Students learn the use of a statistical software package for economic data analysis. Also listed as Environmental Economics and Policy C118. (F) Sadoulet

120. Selected Topics. (3) Course may be repeated for credit. Three hours of lecture per week. Interdisciplinary study of selected international and area studies each. Each offering focuses on problems and issues of international concern in greater detail than can be accomplished in a general topic lecture course. Through the use of lectures, readings, and multimedia presentations, students will explore a variety of perspectives relating to the subject matter of the course. Students will be expected to successfully complete a short paper writing assignment and a written examination. Instructor and topic vary from term to term. (F,SP)

140. Special Topics. (2) Course may be repeated for credit. Three hours of lecture every other week. Prerequisites: Consent of instructor. A short course designed to provide a vehicle to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to international and area studies. Topics will vary from semester to semester. (F,SP)

C145. Multicultural Europe. (4) Three hours of lecture per week. Formerly Interdisciplinary Field Studies 145. In this course, we will trace some of the substantive changes and transformations taking place in contemporary Europe in the areas of culture, society, and politics. In particular, we will look at the effects of massive migration flows—due to globalization processes—on the national culture of the core countries and examine the ways in which particular national cultures react to the increasing multiculturalization of Europe. The goal of the course is, first of all, to familiarize students with a variety of cultural, social, and political innovations that accompany the formation of multicultural Europe. This involves: (1) an examination of the traditional concepts of nationhood and citizenship, and (2) a study of the Europeanization of culture. Also listed as Geographical Studies C176, and Interdisciplinary Studies Field Maj C145.

150. Advanced Studies in International and Area Studies. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Advanced multidisciplinary research in current issues related to international and area studies. Prerequisites: Open only to majors in International and Area Studies. Course will focus on specific issues or geographical areas with appropriate comparative material included. A major research project is required, as well as class presentations. Topics change each semester. (F,SP)
171. Internship in Agroecology and Sustainable Development. (4-8) Course may be repeated for a maximum of 16 units. Twelve to 24 hours of internship per week for junior or senior standing or consent of instructor. Students work in selected internships in nonprofit, government agencies, or farmer networks associated with the Brazilian Consortium on Agroecology and Sustainable Development. The purpose of the internship is to gain direct experience in agroecological techniques and methodologies to achieve sustainability in agriculture. Internships are supervised by an advance faculty coordinator with whom each student will be required to meet regularly and plan out complementary readings and regular written reports. Work commitments will range between 180-360 hours depending on the number of units undertaken and the length of the term enrolled. Final assessments will be based upon performance in the internship, quality of written reports, and a final assessment by the faculty advisor. Internship is repeatable for up to 16 units. Enrollment is restricted to 10 students per term selected through a special selection process. See instructor for details. (F,SP) Altenri

172. Agroecology: A Brazilian Perspective. (4-8) Course may be repeated for a maximum of 16 units. Twelve to 24 hours of lecture/discussion per week. Prerequisites: Junior or senior standing or consent of instructor. This course will be conducted in Brazil at the Universidade de Campinas and Universidade Federal de Sao Paulo. Participants participate in the application of formal lectures, directed discussions based on assigned readings, and presentations by subject experts and faculty from the exchange universities. Field sites are selected to represent agroecological systems that will complement the classroom lectures and discussions. Final assessments will be based upon performance in multiple specific topic assignments connected to the various readings. Students will participate in group discussions and presentations organized around central themes. Final assessment by the faculty instructor will be based upon written performance, quality of presentation of material for discussion, and demonstration of required research assignments through quizzes, exams, and oral discussions. Course content will vary from term to term and is repeatable for up to 16 units. Enrollment is restricted to 10 students per term selected through a special selection process. See instructor for details. (F,SP) Altenri

175. The Economics of Climate Change. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 106, 107, Economics 1, or equivalent. The course will briefly introduce and evaluate the scientific aspects behind climate change. Economic models will be developed to analyze the impacts of climate change and provide critique existing and proposed policy tools. Specific topics studied include water resources and agriculture, economic evaluation of impacts, optimal control of greenhouse gases, benefit cost analysis, international treaty formation, discounting, uncertainty, irreversibility, and extreme events. (F,SP) Amthammer, Fisher

C175. The Economics of Climate Change. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 106, 107, Economics 1, or equivalent. Formerly 250. The course will briefly introduce and evaluate the scientific aspects behind climate change. Economic models will be developed to analyze the impacts of climate change and provide critique existing and proposed policy tools. Specific topics studied include water resources and agriculture, economic evaluation of impacts, optimal control of greenhouse gases, benefit cost analysis, international treaty formation, discounting, uncertainty, irreversibility, and extreme events. (F,SP) Amthammer, Fisher

180. Current Issues in International and Area Studies. (2,3) Course may be repeated for credit. Two to three hours of lecture/discussion per week. Section 1 to be graded on a letter-grade basis. Section 2 to be graded on a passed/not passed basis. This course provides an opportunity to study and discuss issues and events having recent international impact and/or interest. The course will present a multidisciplinary perspective on specific subjects with the intent of linking students with the scholars and scholarship involved in under-standing international issues, events, and crisis. The subjects will vary from semester to semester. Students may enroll in the lecture only for 2 units or may enroll in the lecture and discussion section for 3 units. (F,SP)

197. Field Studies. (1-4) Course may be repeated for credit. In-app, international treaty formation, discounting, uncertainty, control of greenhouse gases, benefit cost analysis, agriculture, economic evaluation of impacts, optimal. (F,SP)

199. Supervised Independent Study and Research for Undergraduates. (1-3) Course may be repeated for credit. One to three hours of independent study per week must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Written proposal must be approved by a faculty advisor. Enrollment restrictions apply; see the “Introduction to Courses and Curricula” section of this catalog. (F,SP) Graduate Courses

202. Seminar in Portuguese Studies. (1) Course may be repeated for credit. May be taken as a seminar or seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Portuguese immigrants have exerted a strong impact on the landscape and culture of California and other regions of North America, and the study of this diaspora continues to be a lively topic of scholarly research. Likewise, the rapid transformations of Portugal and Portuguese society as it has emerged from the stultifying effects of decades of dictatorship and integration into the European Union will provide excellent opportunities for comparative studies in environment and human adaptations in this environment. This seminar provides a forum for the presentation and discussion of ongoing research on topics in Portuguese studies by Berkeley faculty and graduate students visiting scholars. Students must pass the seminar. (F,SP) Kondoff

206. Intermediate Microeconomic Theory. (4) Students will receive no credit for 206 after taking Economics 100A, 101A, Undergraduate Business Administration 100, Environmental Economics and Policy 100, or Business Administration 110. Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 1 or equivalent. This course is designed as a comprehensive overview of intermediate microeconomic theory. It covers a number of topics including consumer and demand theory, firm, production, and cost theory, competitive market theory, imperfect competition, welfare economics, choice under uncertainty, and information. All analysis conducted in the course relies on graphical and algebraic techniques. Outside reading and discussion sections will demonstrate the applicability of the models covered in class to topics at an international level, such as the setting of tariffs, cartel behavior, and international trade. (F,SP) Amthammer

207. Intermediate Macroeconomic Theory. (4) Students will receive no credit for 207 after taking Economics 100B, 101B, Undergraduate Business Administration 101B, or Business Administration 111. Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 1 or equivalent. This course is designed as an overview of intermediate macroeconomic theory focusing on economic growth and international economics. It covers a number of topics including history of economic growth, industrial revolution, post-industrial revolution divergence, fixed-exchange rate systems, and macroeconomic policy. Course is structured for majors in AIS and other non-economic social science majors. (F,SP) Hsieh

C229. Mediterranean-Climate Landscapes. (1-3) One to three hours of lecture/seminar/study per week. Comparative study of environmental conditions and human responses therein to California and other Mediterranean-climate regions, with intensive treatment of a topic in environmental sciences, policy, planning, management, and/or landscape architecture. (F,SP)

230. Cross-Listed Topics. (1-4) Course may be repeated for credit. Variable format. Prerequisites: Consent of instructor. This course is designed to accommodate cross-listed courses offered through other departments, when the content of the course is applicable to the graduate program in International and Area Studies. Content varies from course to course. (F,SP)

240. Special Topics. (2) Course may be repeated for credit. Three hours of lecture per week for eight weeks. (F,SP) Staff

250. Graduate Studies in International and Area Studies. (4) Course may be repeated for credit. Three hours of seminar and one hour of discussion per week. Prerequisites: Consent of instructor. This course is designed to accommodate seminars taken by graduate students, as well as visiting scholars and students pursuing graduate studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

255. Rotary Peace Fellows Seminar. (2-4) Two to three hours of seminar per week. Graduate seminar specifically focused on issues of peace, conflict resolution, human rights, and other topics relevant to the scope of study represented by the Rotary Peace Fellows. Seminars will include weekly meetings, readings, presentations, and discussions. Assignments will include both individual projects and group projects of appropriate scope and depth reflective of unit value of each offering. (F,SP) Staff

271. Internship in Agroecology and Sustainable Development. (4-8) Course may be repeated for a maximum of 16 units. Twelve to 24 hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Students work in selected internships in nonprofit, government agencies, or farmer networks associated with the Brazilian Consortium on Agroecology and Sustainable Development. The purpose of the internship is to gain direct experience in agroecological techniques and methodologies to achieve sustainability in agriculture. Internships are approved in advance by the faculty coordinator with whom each student will be required to meet regularly and plan out complementary readings and regular written reports. Work commitments will range between 180-360 hours depending on the number of units undertaken and the length of the term enrolled. Final assessments will be based upon performance in the internship, quality of written reports and a final assessment by the faculty coordinator. Internship is repeatable for up to 16 units. Enrollment is restricted to 10 students per term selected through a special selection process. See instructor for details. (F,SP) Altenri

272. Agroecology: A Brazilian Perspective. (4-8) Course may be repeated for a maximum of 16 units. Twelve to 24 hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course will be conducted in Brazil at the Universidade de Campinas and Universidade Federal de Santa Catarina. Students participate in internships in nonprofit, government agencies, or farmer networks associated with the Brazilian Consortium on Agroecology and Sustainable Development. The purpose of the internship is to gain direct experience in agroecological techniques and methodologies to achieve sustainability in agriculture. Internships are approved in advance by the faculty coordinator with whom each student will be required to meet regularly and plan out complementary readings and regular written reports. Work commitments will range between 180-360 hours depending on the number of units undertaken and the length of the term enrolled. Final assessments will be based upon performance in the internship, quality of written reports and a final assessment by the faculty coordinator. Internship is repeatable for up to 16 units. Enrollment is restricted to 10 students per term selected through a special selection process. See instructor for details. (F,SP) Altenri
upon assigned readings, and presentations by subject experts and faculty from the exchange universities. Field site visits to local farms and agroecology centers will complement the classroom lectures and discussions. Final assessments will be based upon performance in multiple specific topic assignments connected to the various readings. Students will participate in group discussions and presentations organized around central themes. Final assessment by the faculty instructor will be based upon written performance, quality of presentation of material for discussion, and demonstration of understanding of required reading assignments through quizzes, exams, and oral discussions. Course content will vary from term to term and is repeatable for up to 16 units. Enrollment is restricted to 10 graduate students selected through a special selection process. See instructor for details. (F.S.P) Alteri

292. Directed Advanced Research. (2-4) Course may be repeated for credit. Individual weekly meetings. Prerequisites: Consent of instructor and graduate-level standing. This course is intended to provide supervision in unsatisfactory status of major assignments. Appropriation on international and area studies topics. The topic should be agreed upon in advance by both the student and faculty sponsor and generally will be topics not covered in other existing coursework. (F.S.P)

299. Directed Reading. (1-4) Individual weekly meetings. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor and graduate-level standing. Individual conferences intended to provide directed reading in subject matter not covered by available seminar offerings. (F.S.P) Professional Courses

300. Teaching Practicum in IAS. (1-4) Course may be repeated for a maximum of 12 units. One hour of consultation, three hours of lecture, and two hours of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as a graduate student instructor in one of the IAS teaching programs. Open to all GSIs teaching in IAS major programs. This course is intended to provide subject specific academic preparation appropriate to discussion section teaching assignment. It will serve as a forum to discuss problems and create innovative solutions to these problems and focusing on course construction and operation, organizing syllabi, preparing lectures, devising written assignments, leading discussion sections, constructing evaluative mechanisms and grading strategies. Each section will focus upon the pedagogical issues specific to the course in which the student is teaching. Units will be assigned according to the percentage of appointment and the instructional workload assigned to the discussion sections. (F.S.P) Staff

301. Professional Training: Teaching in IAS. (2) Course may be repeated for a maximum of 8 units. Required for graduate student instructors in International and Area Studies major programs for the first time, and is strongly recommended for all IASTP GSIs. Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as a graduate student instructor in one of the International and Area Studies Teaching Programs. This course is intended to prepare students from the various social science disciplines to be instructors in interdisciplinary/multi-departmental courses. It will serve as a forum to discuss problems and create innovative solutions to these problems. Focusing on course construction and operation, specialists from various disciplines will discuss strategies for moving outside of their areas of specialization and into broader areas of international and area studies. Graduate students will be provided training in building their own interdisciplinary teaching styles. Organizing syllabi, preparing lectures, devising written assignments, leading discussion sections, constructing evaluative mechanisms and grading them will all be covered over the course of the semester. (F.S.P)

Italian Studies

College of Letters and Science

Department Office: 6303 Dwinelle Hall, (510) 642-2704
italian.berkeley.edu

Professors
Albert Russell Ascoli, Ph.D. Cornell University. Medieval and Renaissance literature and culture
Loren Pantagast, Ph.D. University of California, Italian Renaissance art
Barbara Schapman, Ph.D. Yale University. Late 19th- and 20th-century literature and culture, gender studies, literary and cultural theory, film
Louise George Clubb (Emertus), Ph.D.
Gustavo Costa (Emertus), Dottore in Filosofia
Anthony Newcomb (Emertus), Ph.D.
Nicolas J. Perella (Emertus), Ph.D.
Randolph Stein (Emertus), Ph.D.

Associate Professors
Steven Botterill, Ph.D. Cambridge University. Dante, literature and culture 1200-1500
Mike Fuller, Ph.D. University of Florida, Berkeley. Anthropology and history of modern Italy, colonialism, psychoanalysis
Gavriel Moses, Ph.D. Brown University. Italian film and film theory, 19th-century literature and culture, interdisciplinary poetics
Alexia Ricciardi, Ph.D. Yale University. Post World War II Italian culture and film, contemporary political philosophy

Senior Lecturer
Catherine Feucht (Emertus), B.A.

Lecturer
Armando Di Carlo, Ph.D. University of Michigan, Ann Arbor. Language program coordinator

Undergraduate Program Faculty Adviser: Mr. Botterill
Graduate Adviser: Mr. Ascoli

Department Overview

The undergraduate program is designed to: (1) provide training to a high degree of fluency in reading, writing, and speaking Italian; (2) give students the opportunity for intensive study in Italian literature and culture from the Middle Ages to the present day; (3) introduce them as fully as possible to the richness and variety of Italian experience past and present; and (4) extend their linguistic and literary training by exposing them to approaches drawn from other scholarly disciplines.

The graduate program offers in-depth training in the field of Italian studies, leading to the Ph.D. degree. Beginning with a strong foundation in the critical analysis and historical understanding of Italian literature, the program encourages exploration of a wide variety of disciplinary and interdisciplinary areas, including, but not limited to: film studies; comparative literature; literary, rhetorical, and cultural theory; gender studies; history; anthropology; history of art and music; architecture; classics; political science; medieval and early modern studies; Romance languages and literature; and so on.

The Major

Lower Division. 20 units of Italian Language courses to include Italian Studies 101A-101B, Advanced Grammar, Reading, and Composition, and Italian Studies 103, History of Italian Culture, or Italian Studies 104, Reading Italian Literature. At least 20 units must be taken in residence. Up to 8 credits of coursework with primary readings and discussion in English may be counted toward the minor unit requirement. Such courses may be taken in other departments (e.g., History, History of Art, Music) with advance permission of the undergraduate faculty adviser.

No more than 8 credits earned through Education Abroad Programs may count toward upper division requirements. All courses for the minor must be taken on a letter-grade basis. A GPA of 2.0 is required in upper division courses used for the minor.

Study in Italy

Berkeley offers advanced students the opportunity of studying Italian in Padua, Bologna, Rome, Siena, or Milan. The programs feature courses in the major and minor disciplines of Italian studies, literature, and history. The department recognizes many of these courses as satisfying requirements in the Italian Studies curriculum. Students intending to use Study Abroad courses toward the minor should consult with the undergraduate faculty adviser before departure. Details of the programs are available from Berkeley Programs for Study Abroad, 160 Stephens Hall; (510) 642-1356; studyabroad.berkeley.edu.

The department also participates in the UC Berkeley Summer Sessions program in Florence. This program offers Elementary Italian 1 and 2, which can be applied to the lower division language requirements for the major and the minor, as well as a course in Italian cultural history.

Graduate Program

The Department of Italian Studies offers an integrated M.A./Ph.D. program, in which the M.A. constitutes the first phase in a trajectory leading to the Ph.D. Applications are not accepted for the M.A. degree alone. Students holding a master’s degree in the equivalent in linguistic proficiency. No more than 2 credits earned in Italian Studies 101A-101B, Advanced Grammar, Reading, and Composition, and Italian Studies 103, History of Italian Culture, or Italian Studies 104, Reading Italian Literature. At least 20 units must be taken in residence. Up to 8 credits of coursework with primary readings and discussion in English may be counted toward the total major unit requirement. Such courses may be taken in other departments (e.g., History of Art, History, Music) with advance permission of the undergraduate faculty adviser. No more than 12 credits earned through Education Abroad Programs may count toward upper division requirements. All courses for the major must be taken on a letter-grade basis. A GPA of 2.0 must be maintained in the major and overall.

Honors Program. To enter the honors program, in addition to having a minimum overall GPA of 3.3, students must have completed at least 20 upper division units in the Italian Studies major. Candidates must enroll in Italian Studies H195 for one semester during which they will carry out research and write an honors thesis under the guidance of a faculty member. Students who meet the GPA requirements must first consult with the undergraduate faculty adviser in order to pursue an honors thesis in their senior year.

The Minor

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

Lower Division. 20 units of Italian language courses to include Italian Studies 101A-101B and either Italian Studies 103 or 104. At least 12 units must be taken in residence. Up to 4 credits of coursework with primary readings and discussion in English may be counted toward the minor unit requirement. Such courses may be taken in other departments (e.g., History, History of Art, Music) with advance permission of the undergraduate faculty adviser.

No more than 8 credits earned through Education Abroad Programs may count toward upper division requirements. All courses for the minor must be taken on a letter-grade basis. A GPA of 2.0 is required in upper division courses used for the minor.

Graduate Program

The Department of Italian Studies offers an integrated M.A./Ph.D. program, in which the M.A. constitutes the first phase in a trajectory leading to the Ph.D. Applications are not accepted for the M.A. degree alone. Students holding a master’s degree in the equivalent in linguistic proficiency.
be in graduate seminars. The courses must include Italian Studies 205, 290A, and 290B. One 4-unit seminar course in each of at least three of four historical periods of literature and culture: 13th-14th centuries; 15th-16th centuries; 17th-18th centuries; 19th-21st centuries. (This requirement is subject to waiver based on prior experience in equivalent courses or an equivalent number of units required for each student will be determined by the graduate adviser in consultation with the Graduate Committee at the time of enrollment and will be based on a careful evaluation of the student’s prior training in Italian. Students are required to demonstrate advanced reading skills in one language other than Italian and English which has a scholarly relevance to the field.

In the second year of this phase, students take a comprehensive written examination based on a reading list agreed upon by the student and the department. Upon conferral of the M.A. degree, students prepare a statement outlining plans for work in the second, doctoral, phase of the program and formally request permission to proceed. Detailed information is available from the department.

Second Phase: Doctor of Philosophy in Italian Studies. Requirements: Two to three years of coursework including Italian Studies 282, the exact number of units depending on the extent of the student’s preparation. During this phase, students develop a primary field of study in Italian studies, and a secondary field of Italian studies, prepare for an examination in their area of specialization, and develop a dissertation topic. A provisional prospectus is produced in Italian Studies 282 and submitted for approval. The approval process usually takes place at the beginning of the semester in which the qualifying examination is to be taken. The qualifying examination includes both written and oral parts and is based on detailed proposals submitted with bibliography for a primary field and two special topics which have been approved by the graduate adviser. Students must also demonstrate advanced reading ability in at least two languages other than Italian and English (students may have demonstrated proficiency in one of these in the first phase of the program); the choice of languages will depend upon the area of doctoral research of each student. The degree is awarded upon approval of a completed doctoral dissertation. Detailed information is available from the department.

A Ph.D. in Romance Languages and Literatures. Ph.D. in Romance languages and literatures with emphasis in Italian is also offered. For information, please see the entry for “Romance Languages and Literatures” in this catalog.

Lower Division Courses

1. Elementary Italian. (5) Five hours of lecture and one hour of laboratory per week. Basic grammar for beginners; part one. (F,SP)
2. Intermediate Italian. (5) Five hours of lecture and one hour of laboratory per week. Prerequisites: 1 or 14A. Basic grammar for beginners; part two. (F,SP)
3. Intermediate Italian. (5) Five hours of lecture per week. Prerequisites: 2. Grammar review, reading, and written composition. (F,SP)
4. Advanced Italian. (5) Five hours of lecture per week. Prerequisites: 3. Selected readings in modern Italian prose; a review of the essentials of grammar; written and oral exercises. (F,SP)

RSA-RSB. Reading and Composition. (4) Three hours lecture/discussion per week. Prerequisites: UC Entry-Level Writing Requirement or equivalent for RSA; RSA or equivalent for RSB. Reading and composition course based on works by Italians and for-eigners about Italy and its culture and by Italians about their distinctive experiences of other cultures as tourists and emigrants. Works studied will be primarily chosen from the fields of fiction and nonfiction narratives, both originally in Italian and translated into it. RSA satisfies the first half of the Reading and Composition requirement and RSB satisfies the second half. (F,SP) Staff

12. Advanced Conversational Italian. (3) Three hours of lecture/discussion per week. Prerequisites: 3 or equivalent, or consent of instructor. Course is designed to develop and enhance oral communication skills at an advanced level, by means of conversational practice, discussion of readings, student presentation or oral interpretation of audio-visual materials and readings. (SP) Di Carlo

30. Dante (in English). (3) Three hours of lecture per week. An introduction to Dante’s works in the cultural and historical context of the European Middle Ages. (F,SP) Botterill

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format Section 1 to be graded on a letter-grade basis. Section 2 to be graded on a passed/not passed basis. Prerequisites: Prior knowledge of Italian language and culture. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Staff

40. Italian Culture (in English). (4) Three hours of lecture and one hour of discussion per week. Formerly 40A-40B. Introduction to Italian studies through selected topics and themes integral to the history, literature, and arts of Italy from Dante to Fellini. (F,SP) Staff

50. The Italian Renaissance. (4) Three hours of lecture and one hour of discussion per week. Interdisciplinary introduction to the Italian Renaissance through selected topics integral to the history, literature, and arts of Italy in the 15th and 16th centuries. (F,SP) Ascoli, Botterill

70. Italian Cinema: History, Directors, Genres, Introduction to Italian Cinema. (3) Course may be repeated for credit as topic varies. Three hours of lecture/discussion and analysis and two to three hours of film viewing per week. This course is a brief introduction to the history of Italian cinema. No prior knowledge of Italian cinema or film theory is necessary. We will study major authors and genres of Italian cinema in the context of Italian culture and history from 1895 to the present. The course is structured chronologically; we will begin with silent film, work our way through the 20th century, and end with contemporary cinema. Students attend weekly screenings. Films and film clips will also be shown during lectures. (F,SP) Moses

84. Sophomore Seminar. (1-2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-4 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and from semester to semester. Staff

98. Directed Group Study. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Group study of selected topics to be covered by regularly scheduled courses. (F,SP) Staff

Upper Division Courses

101A-101B. Advanced Grammar, Reading, and Composition. (4) Three hours of lecture per week. Prerequisites: 4. Reading and grammatical analysis of representative texts; advanced written composition. (F,SP) Di Carlo

103. History of Italian Culture. (4) Three hours of lecture per week. Formerly 103A-103B. Introduction to the historical development of culture and literature in Italy from the Middle Ages to the present day. Lectures, critical analysis of texts, frequent writing exercises. In Italian. (F,SP) Staff

104. Reading Italian Literature. (4) Three hours of lecture/discussion per week. Introduction to basic works of Italian literature (fiction, poetry, drama) with an emphasis on techniques of reading. (F,SP) Staff


110. Literature and Culture of the 13th and 14th Centuries. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Formerly 110A-110B. Emphasis on the literature and culture of the 13th and 14th centuries. Literature will emphasize the “Stil Novo” and Dante’s minor works as well as Boccaccio’s Decameron and Petrarch’s Rime. (F,SP) Staff

112. Sixteenth-Century Literature and Culture. (4) Course may be repeated as topic varies. Three hours of lecture per week. In its responses to a broad spectrum of cultural, ideological, and institutional discourses. (F,SP) Staff

115. Nineteenth-Century Literature and Culture. (4) Course may be repeated as topic varies. Three hours of lecture per week. Taught in English. In its responses to a broad variety of cultural, ideological, and institutional discourses. (F,SP) Staff

117. Twentieth-Century Literature. (4) Course may be repeated as topic varies. Three hours of lecture per week. Taught in English. In its responses to a broad variety of cultural, ideological, and institutional discourses. (F,SP) Staff

120. Topics in Italian Studies. (4) Course may be repeated for credit as topic varies. Three hours of lectures, readings, and discussion per week on major authors, themes, and movements in Italian literature. (F,SP) Staff

130A. Dante’s Inferno (in English). (3) Three hours of lecture per week. An introduction to Dante’s Inferno in the context of his other works. Taught in English. (F,SP) Ascoli, Botterill

130B. Dante’s Purgatorio and Paradiso (in English). (4) Three hours of lecture per week. A close introductory reading of Dante’s Purgatorio and Paradiso. Prior completion of Italian 130A Inferno is recommended. Taught in English. (F,SP) Ascoli, Botterill

160. Studies in the History, Society, and Politics of the Italian Peninsula. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. The course will study Italian culture from the perspective of social and historical forces, as articulated by a broad variety of cultural, ideological, and institutional discourses. (F,SP) Staff

163. Special Topics in Italian Literature. (4) Course may be repeated as topic varies. Three hours of lecture per week. Taught in English. In its responses to a broad spectrum of cultural, ideological, and institutional discourses. (F,SP) Staff

170. The Italian Cinema: History, Genres, Authors. (4) Course may be repeated for credit as topic varies. Three hours of lecture and two to three hours of film viewing, analysis, and discussion per week. An analysis of Italian cinema as seen through the lens of specific film genres such as neo-realism, comedy, self-reflexive cinema. Occasionally the course will concentrate on a specific director and study his individuality through style, theme, and personal develop-
ment. This course fulfills film major requirement in one of history, genre, auteur. (F,SP) Moses

175. Film and Literature (in English). (4) Course may be repeated for credit as topic varies. Three hours of lecture, two hours of film viewing, and two hours of discussion. Weekly workshop per week. The exploration of film style with literary and poetic structure studied through film theories, film novels, and the work of outstanding Italian film directors. Literature shaped by popular culture and films dealing with the essence of cinematic form will be analyzed. This course may fulfill the film major requirement in theory. (F,SP) Moses

H195. Special Studies for Honors Candidates. (3) Individual conferences. Prerequisites: 3.3 overall GPA, 3.5 in major, and must have completed at least 18 upper division units in the major. Limited to senior honors candidates. Directed study relating to the writing of an honors thesis. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a pass/fail basis. Prerequisites: Students must have completed 60 units and have a minimum GPA of 2.0. Supervised group study of selected topics not covered by regularly scheduled courses. (F,SP) Staff

199. Supervised Independent Study and Research for Advanced Undergraduates. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a pass/fail basis. Prerequisites: Restricted to senior students with overall GPA of 3.5 or better. Students must have completed at least 18 upper division units in the major. Limited to senior honors candidates. Directed study relating to the writing of an honors thesis. (F,SP) Staff

200. Italian Stylistics. (2,4) Students taking course for 2 units do not write a final paper and may enroll in the course on a satisfactory/unsatisfactory basis. Three hours of seminar per week. An introduction to the techniques of writing. (F,SP) Staff

201. Linguistic History of the Romance Language. (4) Three hours of lecture per week. Prerequisites: Knowledge of at least two of the major Romance languages (French, Italian, and Spanish). Linguistic development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, combining historical grammar and historical etymology. Also listed as Spanish C202 and French C202. Staff

204. Contemporary Trends in Critical Theory. (2,4) Three hours of seminar and one hour of discussion per week. Course is designed to provide the student with a general view of the major developments in contemporary criticism and an opportunity to apply critical methods to literary texts. One oral report and a final paper. Staff

205. Proseminar I: Italian Literary Studies. (2,4) Students taking course for 2 units do not write a final paper and may enroll in the course on a satisfactory/unsatisfactory basis. Two hours of seminar and one hour of discussion per week. This course introduces the student to the study of Italian literature in its historical scope, while presenting the range of research interests. Introduces the study of Italian literature in its historical context. Formerly 205. Proseminar I: Italian Literary Studies. (2,4) Course may be repeated for credit when readings change. Students taking this course for 2 units do not write a final paper and may enroll in the course on a satisfactory/unsatisfactory basis. Three hours of seminar per week. Formerly 217. Investigation of major topics, genres, and authors in Italian literature and culture of the 15th and 16th centuries. (F,SP) Ascoli, Clubb, Moses

230. Seminar in 19th-Century Literature and Culture. (2,4) Course may be repeated for credit when readings change. Students taking this course for 2 units do not write a final paper and may enroll in the course on a satisfactory/unsatisfactory basis. Three hours of seminar per week. Formerly 221. Investigation of major topics, genres, and figures in Italian literature and culture of the 19th century. (F,SP) Spackman

235. Seminar in 20th-Century Literature and Culture. (2,4) Course may be repeated for credit when readings change. Students taking this course for 2 units do not write a final paper and may enroll in the course on a satisfactory/unsatisfactory basis. Three hours of seminar per week. Formerly 221. Investigation of major topics, genres, and figures in Italian literature and culture of the 20th century. (F,SP) Spackman, Fuller

244. Special Topics in Genre and Mode. (2,4) Course may be repeated for credit as topic varies. Students taking this course for 2 units only do not write a final paper and may enroll in the course on a satisfactory/unsatisfactory basis and do not write a final paper. Three hours of seminar per week. Investigation of significant genres and modes of writing as they recur in the course of Italian cultural history. (F,SP) Staff

260. Directed Readings in Italian Literature and Culture. (2,4) Course may be repeated for credit as topic varies. Students taking this course for 2 units enroll in the course on a satisfactory/unsatisfactory basis and do not write a final paper. Three hours of seminar per week. Investigation of topics in Italian cultural history from a multidisciplinary perspective. (F,SP) Staff

270. Seminar Research Course. (1) Course may be repeated for credit as topic varies. Prerequisites: Consent of instructor. Directed research leading to the writing of a term paper under the direction of an Italian Studies department faculty member. Requires concurrent enrollment in a 100-series seminar. (F,SP) Staff

280. Tutorial in Interdisciplinary Italian Studies. (4) Weekly meetings with professor. Prerequisites: Consent of instructor. Directed reading course combining elements of the student’s primary and secondary fields of graduate study, culminating in the writing of a research paper. Course is required for all Doctor of Philosophy candidates. (F,SP) Staff

282. Prospectus Tutorial. (4) Regular meetings with professor. Prerequisites: Consent of instructor. Directed reading course leading to the production of a formal dissertation prospectus with detailed bibliography. Course is required for all Doctor of Philosophy candidates. (F,SP) Staff

290A-290B. Graduate Colloquium in Italian Studies. (2,4) Course may be repeated for credit. Three to five hours of classroom teaching per week with regular supervision; routine evaluation conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Doctor of Philosophy candidate status. Formerly 301. Required of all graduate student instructors in their first semester of teaching. This course provides instruction on the theory and practice of foreign language teaching and learning with lectures on methodology, testing, grading, class preparation, textbook selection and evaluation, course design and development, and the use of audio-visual and computer aids to instruction. A final research paper is required. It also includes supervised classroom practice. (F) Di Carlo

299. Directed Research. (6-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Limited to students engaged in research for the doctoral dissertation. (F,SP) Staff

301. Concurrent service as Italian graduate student instructor. (F,SP) Di Carlo

355. Seminar in Language Pedagogy. (4) Course may be repeated for credit. Two hours of seminar and five hours of demonstration per week. Prerequisites: Graduate student instructor status. Formerly 301. Required of all graduate student instructors in their first semester of teaching. This course provides instruction on the theory and practice of foreign language teaching and learning with lectures on methodology, testing, grading, class preparation, textbook selection and evaluation, course design and development, and the use of audio-visual and computer aids to instruction. A final research paper is required. It also includes supervised classroom practice. (F) Di Carlo
**Journalism (Graduate School of Journalism)**

**Office:** 121 North Gate Hall, applysoj@journalism.berkeley.edu, (510) 643-3363

**Journalism.berkeley.edu**

**Dean:** Neil Henry, M.A.

**Professors**

- Lowell Bergman (The Reva and David Logan Distinguished Professor of Investigative Journalism), B.A. University of Wisconsin
- Lydia Chavez, M.S. Columbia University Graduate School of Journalism
- Mark Danner, A.B. Harvard University. Foreign policy
- William Drummond, M.S. Columbia University Graduate School of Journalism. Radio
- Jon Else, M.A. Stanford University. Documentary film
- Thomas Greensfelder, M.A. Law and ethics
- Cynthia Gorny, B.A. University of California, Berkeley.
- Long-term Visiting Professor
- Neil Henry (Dean), M.S. Columbia University Graduate School of Journalism. Africa, race relations, sports reporting
- Thomas Leonard, Ph. D. University of California, Berkeley. Journalism
- Michael Pollan (The John S. and James L. Knight Professor of Science and Writing), M.A., Columbia University. Environmental journalism
- Ben H. Bagdikian (Emeritus), A.B.
- Timothy Ferris (Emeritus), B.S.
- David Littlejohn (Emeritus). Ph.D.
- A. Kent Crabb/Douglas Binns, M.S.
- Bernard B. Taper (Emeritus), M.A.

**Associate Professor**

Carolyn Wakeeman (Emeritus), Ph.D.

**Adjunct Professor**

Ken Light, M.F.A. San Jose State University. Photojournalism

**Senior Lecturers**

- Joan Belden (Emeritus), A.A. Gloucer College. Television journalism
- Robert Calo, M.A. San Francisco State University. Television journalism
- Paul Graham, B.A. University of California, Berkeley. New media reporting and production
- Susan Rasky, M.A. London School of Economics. Political and urban reporting
- James C. Childs (Emeritus)
- Andrew A. Stern (Emeritus)

**Program Directors**

- Lowell Bergman, Investigative Reporting
- Lydia Chavez, Latin American Studies Concurrent Degree
- Deirdre English, Magazine Center
- Ken Light, M.F.A, Journalism, Photographic
- Susan Rasky, Political Reporting

**Graduate Program**

The goal of the Graduate School of Journalism is to produce professional journalists who move on to positions of leadership and influence in American journalism. The Master of Journalism (M.J.) program provides intensive training in journalism skills and a knowledge of the traditions and principles of the field. A professional project is required to complete the two-year program. The program is rooted in the idea that the best possible preparation for careers in journalism is a sound liberal arts education followed by training in journalism at the graduate level. Concurrent degree programs with Law, Asian Studies, International and Area Studies, and Latin American Studies are available.

The school offers courses in print, broadcasting, documentary film, radio, television, new media, and photojournalism. All students must take a focused and demanding core course which stresses reporting and writing skills. This is because members of the faculty believe that the best way to train students for careers in journalism is to place them under the supervision and guidance of seasoned journalists in small classes, give them instruction in the skills and attitudes of the craft, and intensive practice in reporting, writing, and editing. Professors give exhaustive critiques of students’ work.

Beyond the core course, there are courses in specific areas, such as political, business, environmental, community, science, international, and cultural reporting. There are also courses stressing different techniques, such as investigative report-

**Upper Division Courses**

100. Introduction to News Reporting. (4) Three hours of lecture per week. Survey of journalistic principles and practices, and study and practice of methods of gathering, writing, and editing news. (F,SP)

141. The Mass Media and Society. (3) Three hours of lecture per week. Critical analysis of the structure and dynamics of contemporary mass media and their impact on society. (SP) Staff

C141. Understanding Journalism. (4) Four hours of lecture per week. Prerequisites: Media Studies major or consent of instructor. In this course, students learn why sound journalism is so important to a healthy, working democracy. Journalism is rapidly changing. The class will give a context to these changes and provide an overview of the different journalistic institutions. Students will examine how news is made, who decides what news is, who makes it, who profits by it, and what rules guide how reporters and editors work. Central issues affecting journalism, such as bias and professionalism, will be discussed.

The class is not specifically intended for future journalists, but students will learn why pursuing a career in journalism can be so fulfilling and thrilling, as well as becoming better consumers of the news. Also listed as Media Studies C103. (F,SP) *Goldstein*

154W. Introduction to Opinion Writing: Walter Lippmann Meets the Blog. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Admission to UC Washington Program.

This course is designed to introduce students to the history and craft of modern opinion writing. The primary goal is to help students sharpen their writing and analytical skills in a format that demands clarity of thought and economy of words. We’ll experiment with voice and style to see how pithy, insightful, and profound we can be—about big issues and small ones—in commentaries on our own blog and in pieces we submit for publication. Columnists, editorial writers and op-ed page editors, and a radio producer will be popping in to critique our offerings. The first weeks of the class will examine the role media pundits, celebrity journalists, pollsters, and bloggers have come to play in shaping the country’s political debate and policy choices. What credentials do these opinion makers have? Is their influence exaggerated by the politicians who seem so eager to curry their favor? We will raise and debate these questions and others about the media elite and that new realm known as the blogosphere. Rasky

C183. China in the 1990s: Reporting the Contradictions. (3) Students will receive no credit for Sociology C183 after taking Sociology 183. Three hours of lecture and one hour of discussion per week. Prerequisites: 1, 3, 3AC or consent of instructor. Formerly Sociology C183 after taking Sociology 183. This interdisciplinary sociological methods to understand the dramatic social consequences of the economic reforms underway in China since 1978, while examining the practical problems of how the Chinese and American media represent these developments to audiences at home and abroad. Sociological topics include change in Communist Party state-society relations; decollectivization of the rural population; ownership reform; political conflict; and realization of the urban residence control system. Journalistic problems include how do attitudes toward information, censorship, and secrecy affect professional news gathering; and influences on news agendas. Also listed as Sociology C183. Gold, Wakeeman

197. Field Study in Journalism. (1-2) Course may be repeated for credit. Must be taken on a pass/no pass basis. Supervised experience in the practice of journalism in off-campus organizations. Individual meeting with faculty sponsor required. See additional information, “Field Study and Internships.” (F,SP) Staff

198. Directed Group Study in Journalism. (1-4) Course may be repeated for credit. Seminar with three hours of lecture and discussion per week. Must be taken on a pass/no pass basis. Prerequisites:
Priority to journalism graduate students.

212. Advanced Radio. (1-3)
will produce a themed final project. (F)

210. Advanced News Reporting. (3-4)
Prerequisites: 200 or consent of instructor. Course may be repeated for credit with different topic and consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200 or equivalent; for others, consent of instructor. Advanced study of methods of reporting developments in such fields as science, education, health, or the environment. (F,SP) Pollan

277. Reporting of Cultural Events. (3-4)
Three hours of lecture/discussion and eight hours of fieldwork per week. Advanced study of reporting and critical writing in fields, such as drama, film, music, fine arts, literature, and architecture. (F,SP) Staff

228. Political Reporting. (3-4)
Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200 or equivalent; for others, consent of instructor. Study and discussion of politics and practice in reporting political events and campaigns. (F,SP) Risky

230. Business Reporting. (3-4)
Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200. Reporting and writing of business, financial, and consumer affairs. (F,SP) Staff

231. Advanced Business Reporting. (3-4) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. Prerequisites: 200, 230, or consent of instructor. Advanced reporting and writing of business, financial, and consumer affairs. (F,SP) Staff

234. International Reporting. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. This course is designed for students who are interested in foreign reporting. Course will include a broad overview of the issues that need to be researched when reporting on the politics, economics, and social issues of a foreign country. Past classes have traveled to Mexico, Cuba, Hungary, India, China, Japan, Venezuela, Ecuador, and Peru. (F,SP) Chavez, Wakeman

235. Covering Asia. (1,2) Two hours of seminar per year. This course will look at selected countries of Asia from the inside out, with perspectives, analysis, and guidance from commenta-

236. China Reporting. (3) Three hours of lecture/ seminar per week, per semester. Course will look at China's social, political, and economic transitions and its global role. Through student- and instructor-led news gathering trips to China, students will gain an understanding of China's role in the world, both as a global economic power and as a rising cultural and political power. (F,SP) Wakeman

237. Reporting on Japan. (1,2) Course may be repeated for credit with different topic and consent of instructor. Two hours of seminar per week. Each semester, this course will focus on a different aspect of Japan. Among other topics, the class may discuss Japan's changing cultural standards or its developing social problems, its political shifts or its history, the changing role of politics in the country and its global role. Through guest speakers— including noted experts, writers, businessmen, and diplomats—and roundtable discussions, students will develop a greater understanding of Japan as a country for use when reporting. (F,SP) Wakeman

242. Profiles. (3) Three hours of seminar per week. Prerequisites: 200 or consent of instructor. In this workshop students use the profile form to develop a variety of skills that may be helpful whenever under-

226. Science Reporting. (3-4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200 or equivalent; for others, consent of instructor. Advanced study of methods of reporting developments in such fields as science, education, health, or the environment. (F,SP) Pollan

227. Reporting of Cultural Events. (3-4) Three hours of lecture/discussion and eight hours of fieldwork per week. Advanced study of reporting and critical writing in fields, such as drama, film, music, fine arts, literature, and architecture. (F,SP) Staff

228. Political Reporting. (3-4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200 or equivalent; for others, consent of instructor. Study and discussion of politics and practice in reporting political events and campaigns. (F,SP) Risky

230. Business Reporting. (3-4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200. Reporting and writing of business, financial, and consumer affairs. (F,SP) Staff

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227. Reporting of Cultural Events. (3-4) Three hours of lecture/discussion and eight hours of fieldwork per week. Advanced study of reporting and critical writing in fields, such as drama, film, music, fine arts, literature, and architecture. (F,SP) Staff
great magazine and newspaper profile writers. (F.SP) Gorney

243. Long-Form Writing. (3,4) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. Prerequisites: 200 or consent of instructor. Students will trace the evolution of writing long-form pieces: how writers choose their sources, gather information, organize their material, and decide whether or not to believe what people tell them. Students will act as an editorial board for each other. Readings include profiles, books and book excerpts, Pulitzer-winning newspaper features, and magazine pieces from a variety of outlets. All assignments are intended for publication. (F.SP) Gorney, Pollan

249. Media and Society in China. (3) Three hours of lecture/discussion per week. This seminar examines the role of the media in China since 1949. Students will analyze the development and impact of the mass media (newspapers and magazines, radio, and television) and of the popular media (revolutionary operas, films, short stories, reportage, wall posters, cartoons, advertisements) from the period of the Communist victory and the Korean War through the Cultural Revolution to the democracy movements of 1979 and 1989 and the subsequent ideological retrenchment. (SP) Wakeman

250. Investigative Reporting. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion plus eight hours of field work per week. Prerequisites: 200 or consent of instructor. Study of investigative reporting, analysis of its technique with outside reporting assignments. (F.SP) Staff

251. Reporting as Literature. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion per week. A study of outstanding examples of journalistic literature. (F.SP) Staff

252. Magazine Article Writing. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion and eight hours of fieldwork per week. Prerequisites: For journalism students, 200 or equivalent; for others, consent of instructor. Study and analysis of the techniques of writing and editing of articles for publication. (F.SP) Staff

254. Opinion Writing. (2-4) Course may be repeated for credit with consent of instructor. Two hours of seminar per week. The reporting, writing, and editing of newspaper editorials and op-ed essays. (F.SP) Rasky

255. Law and Ethics. (3) Three hours of lecture per week. Prerequisites for consent of instructor. The first eight weeks will concentrate on First Amendment and media law, including libel and slander, privacy, free press/fair trial conflicts, and litigation arising from current reporting methods. The closing weeks will focus on ethical dilemmas faced by reporters and editors. Using case studies, readings and guest lecturers, the course examines the murky conflicts that don’t necessarily make it to court but nevertheless force difficult newsroom decision-making. (F.SP) Staff

260. Investigative Reporting for TV and Print. (2,3) Two hours of seminar per week. Students will be required to investigate leads that are received by the faculty, and prepare briefing papers for the class to investigate. They will work on researching and reporting assignments related to documentary productions and print stories for different outlets. “Sources,” people with information critical to developing a story, need to be developed. The responsibilities of a reporter engaged in developing sources will be a constant theme of the seminar. (F.SP) Bergman, Gunnison

268. Law for Legal Affairs Reporting. (3) Three hours of lecture/discussion per week plus additional outside time. Study of the organization of the structure and philosophy of the legal system to prepare the journalist for reporting legal affairs. (F.SP) Staff

275. Radio News Reporting. (4) Four hours of lecture/discussion and four hours of field and laboratory work per week. Study of techniques, practices, and methods of gathering and writing radio news. Students will produce weekly live radio news programs. Enrollment is limited to 15. (F.SP) Drummond, Staff

282. Introduction to Television News. (4) Four hours of lecture/discussion, 15 hours of laboratory per week. Study of the history and institutions of broadcast journalism (nine weeks), practice, techniques of reporting news for radio and television. (F) Bieder, Calo, Staff

283. Reporting for Television. (5) Six hours of lecture/discussion and 24 hours of laboratory/fieldwork per week. Prerequisites: 282 and consent of instructor. Producing, directing, writing, and videotaping of live weekly television news program. (SP) Bieder, Calo, Staff

284. Documentary Production. (4) Three hours of lecture, 12 hours of laboratory/fieldwork per week. Prerequisites: 282, 283, and consent of instructor. Production of television documentary news programs. (F.SP) Else

285. Advanced Television Reporting: Longform Television. (4) Three hours of lecture, and 15 hours of laboratory/fieldwork per week. Prerequisites: 282, 283, and consent of instructor. Reporting and production of television news magazine stories and programs. (F.SP) Bieder, Calo

286. History of Documentary. (3) Three hours of seminar per week. This seminar course provides students with the opportunity to meet with and discuss projects with Frontline producers and reporters. Each session will focus on a single documentary episode and take an in-depth look on the development of the story out of an idea, the journalistic approach and methods used by the team, the process of finding and creating the appropriate dramatic structure, and the public impact and critique of the program. (SP) Staff

287. Inside Frontline. (1,2) Two hours of seminar for ten weeks. This seminar course provides students with the opportunity to meet with and discuss projects with Frontline producers and reporters. Each session will focus on a single documentary episode and take an in-depth look on the development of the story out of an idea, the journalistic approach and methods used by the team, the process of finding and creating the appropriate dramatic structure, and the public impact and critique of the program. (SP) Staff

288. Digital TV and the World. (3) Course may be repeated for credit. Three hours of lecture and nine hours of laboratory per week. Prerequisites: Journalism students must be enrolled in the TV program. Students who are not enrolled in the TV program who wish to attend must be invited to apply for this experimental class. Students who choose to use this course for credit with special attention to independent productions and documentaries for network television. In the works of Fred Wiseman, Jon Else, Camilo Ontiveros, James N. Kass, Funke, Morris, Marlon Riggs, Barbara Kopple, Orlando Bagwell, the Mayesles, and the network staff producers, we will look at the practical problems of making documentaries for a mass audience. (Required for J-School students who are considering specializing in documentary.) (SP) Else

289. Inside Frontline. (1,2) Two hours of seminar for ten weeks. This seminar course provides students with the opportunity to meet with and discuss projects with Frontline producers and reporters. Each session will focus on a single documentary episode and take an in-depth look on the development of the story out of an idea, the journalistic approach and methods used by the team, the process of finding and creating the appropriate dramatic structure, and the public impact and critique of the program. (SP) Staff

290. Editing Workshop. (2,3) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. The reporting, writing, and editing of radio news. Students will produce daily news programs. The course will emphasize solid reporting, clear expression, and original storytelling. (F.SP) Staff

290. Editing Workshop. (2,3) Course may be repeated for credit with consent of instructor. Two to three hours of seminar per week. Prerequisites: Journalism students only; priority to second-year students completing master’s project. It can take a lifetime of writing to learn how to critique and revise your work. Hard as writing itself can be, rewriting—breaking back into your own framework, rethinking, re-imaging, and revising—can be harder yet. Sometimes only an editor can help you gain the distance needed to view your work. No matter how good a journalist you may be, an editor can help you reach another stage in your writing process. (F.SP) Staff

294. Master’s Project Seminar. (1-2) One hour of seminar per week. Prerequisites: 200 and consent of instructor. Group meetings plus individual tutorials. Methods of research, organization, and preparation of professional thesis projects. Required of M.J. candidates working on thesis projects during both fall and spring semesters. (F.SP) Staff

297. Field Study in Journalism. (1-2) Course may be repeated for credit. Field study. Must be taken on a satisfactory/unsatisfactory basis. Supervised exper- iments in the practice of journalism in off-campus organizations. Individual meeting with faculty sponsor and written reports required. See additional information, “Field Study and Internships.” (F.SP) Staff

298. Group Study—Special Topics. (2-4) Course may be repeated for credit as topic varies. Two to three hours of group meeting per week. Specialized seminar topics in reporting and writing. (F.SP) Staff

299. Individual Study. (1-3) Course may be repeated for credit. Individual study. Supervised individual study and research. (F.SP) Staff

601. Individual Study for Master’s Students. (1-8) Course may be repeated for credit with consent of graduate advisor. Individual study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Course is restricted to journalism students. Individual prepa- ration or study in consultation with faculty adviser. Study plan and approval of the School of Journalism are required prior to the completion of the master’s project/examination. Units may not be used to meet either unit or residence requirements for a master’s degree. (F.SP) Staff

Landscape Architecture and Environmental Planning
(College of Environmental Design)

Department Office: 202 Wurster Hall, (510) 642-4022
laep.ced.berkeley.edu


Professors
Peter C. Bosselmann, M.Arch. Urban design
Randolph T. Hester Jr., M.L.A. Community participation, neighborhood design
Walter J. Hood Jr., M.Arch., M.L.A. Community design, landscape design, site planning
Linda L. Jewell, B.Arch., M.L.A. Relationship of design and construction technology
G. Mark Hancock, Ph.D. Applied geomorphology and hydrology, environmental planning
Jose R. McBride, Ph.D. Vegetation and ecological analysis
Michael Southworth, Ph.D., M.C.P., B. Arch. Urban design and planning
Charles H. (Chip) Sullivan, M.L.A. Landscape design and art, graphic
R. Preissig, Emeritus, M.L.A.
Clare Cooper Marcus (Emerita), M.A., M.C.P.
Robert H. Weiss (Emeritus), Ph.D.

Associate Professors
Timothy P. Duane, M.S., Ph.D. Energy and environmental planning
Louise A. Mosting, M.L.A. History and design
John D. Radke, Ph.D. University of British Columbia. Geodesy, geographical information systems

Assistant Professor
Judith Stilgenbauer, M.L.A. Design theory and practice, digital technology application, plants design

Adjunct Professors
John L. Kirke, M.Arch. Urban design
Marcia McNally, M.C.P. Urban design, community participation, landscape design
David R. Rorer, B.S. Landscape Architecture

The Profession
The profession of landscape architecture plays an important role in solving environmental problems through design and planning. Professional practice includes design of public spaces for recreation areas, schools, housing, neighborhoods, streets, and cities, planning for conservation of open space and natural amenities, land management and development, and assessment of the public good.
impact of projects and proposals on environmental quality and design of such projects to be environmentally compatible.

Landscape design typically involves project programming, site planning of buildings and buildings, controlling transportation, planning, and detailed design of public and private exterior spaces and landscapes. It requires an understanding of visual and social factors, plant materials, construction techniques, and biology.

Environmental planning is concerned with the larger context of natural and urban environments including the study of ecology, conservation planning, environmental law, resource development, computer applications, recreation planning, and urban and regional transportation systems. The intent of all the emphases is the creation of delightful landscapes that are ecologically sound and socially informed.

**Undergraduate Program**

The four-year curriculum leading to the A.B. degree in landscape architecture provides a general education in environmental design and serves as preparation for subsequent graduate education or entry-level work in the field. The emphasis is on design. UC students who earn the A.B. degree will become eligible to take the state examination for a two-year fellowship under a licensed landscape architect.

Required core courses represent a minimum basic coverage in theory, design, and technology, but the program provides an opportunity to study more intensively all aspects of landscape architecture, including landscape analysis and planning, urban design, recreation, site design and development, graphics, construction, and planting design.

For more complete information, see laeap.ced.berkeley.edu/programs/undergraduate/abdegree.

**Graduate Program**

The Master of Landscape Architecture Degree.

The Master of Landscape Architecture degree is a professional degree accredited by the American Society of Landscape Architects. The program offers advanced work in landscape architecture and includes landscape analysis and planning, urban design, recreation, site design and development, graphics, construction, and planting design.

For more complete information, see laeap.ced.berkeley.edu/programs/undergraduate/abdegree.

Concurrent Degree Program in Architecture and Landscape Architecture. The Departments of Architecture and Landscape Architecture and Master of Urban Design program bring together the two departments of the School of Environmental Design. The intent of the Concurrent Degree Program is to provide students with the knowledge and skills necessary to pursue a career in landscape architecture or urban planning. The program offers students the opportunity to explore the intellectual and technical aspects of urban design and planning.

Graduate Program

The Master of Landscape Architecture degree is offered by the Department of Landscape Architecture and Urban Planning. The program leads to the M.L.A. degree and is designed for exceptionally well-qualified students who have completed a Bachelor's degree in architecture or landscape architecture and have a minimum of two years of professional experience after completion of the undergraduate degree. See the “Urban Design” section of this catalog for further information.

The Ph.D. degree in Environmental Planning.

The Doctor of Philosophy program in environmental planning is offered for students who wish to pursue advanced scholarly and research work. The program emphasizes the development of theories and methods that underlie the fields of environmental planning or urban design, and the processes of planning and design as they relate to the solution of problems in the natural and urban environment. The Ph.D. degree in environmental planning is intended for those seeking careers in research and teaching in environmental planning or urban design or in specialized roles in government or professional consultation.

There are no courses specifically required for the Ph.D. degree. In consultation with their faculty advisers, students formulate a coursework plan best suited to their individual specializations within the field of environmental planning. Ph.D. requirements are as follows: 32 units of upper division and graduate coursework, two-year academic residency, reading knowledge of a departmentally approved foreign language, successful completion of a qualifying examination, and a dissertation toward the degree is evaluated annually by the Ph.D. Committee.

Admission is granted to a small number of individuals each year. Most applicants will have completed a master's degree before entering. Students with only a bachelor's degree should apply to the M.L.A. program first or otherwise complete an undergraduate program. More information may be obtained from the Graduate Office in 202 Wurster Hall or from our web site.

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of semes ter per week for 15 weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus.

84. Concurrent Program. Course may be repeated for credit as topic varies. One hour of semes ter per week for 15 weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: Priority given to freshmen and sophomores. Freshmen and sophomores may join other concurrent degree program. This program will lead to two professional degrees: Master of Architecture and Master of Landscape Architecture. This program brings together students from both the School of Environmental Design and the School of Architecture.

101. Fundamentals of Landscape Design. Two hours of lecture and six hours of studio per week. Prerequisites: Environmental Design 11A-11B or consent of instructor. This studio introduces students to the programmatic, artistic, and technical aspects of land form and topographic adjustments to accommodate human use. Topics include pedestrian and vehicular circulation, water conservation, and preservation of plant materials, movement of water, recreation use, and creation of views. Sculptural land forms will be emphasized through the use of topographic plans, sections, and contour models. (F) Stilgenbaur, Staff

102. Case Studies in Landscape Design. Two hours of lecture and six hours of studio per week. Prerequisites: 101 or consent of instructor. This studio stresses the shaping and coordination of ideas from initial concept to complete design product. A product such as a garden, small park, plaza, or campus courtyard will be developed in detail including the selection of planting, selection of construction materials, and topography. Lectures and discussions on selected professional topics are integrated into this course. (SP) Hood, Staff

103. Energy, Fantasy, and Form. Three hours of lecture and six hours of studio per week. Prerequisites: 101, 102, Environmental Design 11A-11B, [Arch 114, or consent of instructor]. This is an undergraduate studio course with a central focus on climate modification for energy conservation. We will research historical precedents in the solution of problems in the natural and urban environment and develop new green living designs. We will also explore how past cultures integrated metaphysics into their gardens as an adjunct to microclimate and habitat design. The contemporary landscape designer should be aware of the meaning of proportion, function, comfort, energy conservation, and the environment. Additionally, we will study the choreography of space and investigate how to animate the landscape through the creative interpretation of text.
and film. Many new and exciting opportunities lie ahead for the creation of garden forms that not only conserve energy but are also works of art and places of spiritual renewal. (F) Sullivan

110. Ecological Analysis. (4) Three hours of lecture and four hours of field laboratory per week. Analysis of environmental factors, ecosystem functions, and ecosystem dynamics, as related to decision-making for landscape planning and design. (F) McBride

111. Plants in Design. (3) Three hours of lecture per week. Prerequisite: 110 or consent of instructor. Introduction to the use of plants as design elements in the landscape, from the micro- to the macro-scale, and their role in shaping the public open space. By analyzing historic, contemporary, and Bay Area examples, the course examines the spatial, visual, and sensory qualities of vegetation, as well as the interplay with ecological functions and engineering uses of plants. (F) Stilgenbauer

112. Landscape Plants: Identification and Use. (4) Two hours of lecture and six hours of fieldwork per week. This course is an introduction to the identification and use of common landscape plants, including their use in design applications and uses, of plants in the landscape. Through lectures, assignments, and fieldwork, the course provides class participants with an appreciation of the importance of plants in the landscape design. Students will be introduced to a variety of built projects and plants commonly used in Bay Area landscapes. (SP) Stilgenbauer

120. Topographic Form and Design Technology. (3) Two hours of lecture and two hours of studio per week. Prerequisites: 110 or consent of instructor, Technical, graphic and computational exercises, and studio problems in topographic site design and the shaping of the site for surface drainage. (SP) Jewell

121. Design in Detail: Introduction to Landscape Materials and Construction. (4) Three hours of lecture and six hours of laboratory per week. Prerequisites: 101, Architecture 100A, or consent of instructor. This course introduces the visual and physical characteristics of landscape construction materials including, but not limited to, stone, brick, concrete, metal, asphalt, and wood. Additionally, lectures cover the production and availability of these materials, any existing evaluations on their sustainability, and their impact on the immediate environment. Students also learn to utilize standard sources of information on building materials and the terminology typically used when choosing and specifying construction materials. They become familiar with dimensional standards for landscape structures, including pavements, stairs, furnishings, retaining walls, freestanding walls, fences, decks, and small overhead structures. (SP) Jewell

130. Introduction to Landscape Architecture. (3) Three hours of lecture per week. Survey of landscape architecture as it has evolved as an expression of people, time and place, including the garden, parks, and public open spaces. Land use planning and environmental protection. Discussion of design process and planning methods, materials, and techniques of professional practice. (F,SP) Staff

132. Computer Applications in Environmental Design. (4) Three hours of lecture and three and one-half hours of laboratory per week. This course introduces students to the use of computers in Landscape Architecture and Environmental Design. It develops applied computing skills in web publishing, Computer Aided Design (CAD), image scanning, and Geographic Information Systems (GIS). This course is designed to meet the needs of students who require an introduction to the use of current computer technology in landscape design. Students will learn to integrate and manipulate digital images and maps, as well as to create and manage computer databases and other types of digital information. The course is also designed to provide students with an understanding of the role of technology in landscape architecture and environmental design. (SP) Mozingo

136. Advanced Landscape Delineation. (2) Two hours of lecture and one hour of studio per week. Prerequisites: 111A or 111B and consent of instructor. Students will complete a midterm, final, and a research assignment. The course is designed to be a forum for presentation of student projects and problems in landscape architecture, supplemented by guest lectures and a "hands-on" laboratory session each week. The lecture is structured as a seminar in which the instructor and students discuss problems and solutions presented in the studio. The laboratory provides a practical introduction to some of the topics for spatial data manipulation in CAD. (F) Radke

134A. Drawing Workshop I. (3) Two hours of lecture and three hours of studio per week. Prerequisites: Environmental Design 11A-11B or consent of instructor. This studio will elaborate on a number of studio themes while introducing the students to a variety of graphic mediums and drawing techniques. Measured drawing procedures (including orthographic projections) will be augmented by figure-ground principles and themes of contrast, color, chiaroscuro, and composition. On-site visits to galleries and museums will complement the studio themes. (F) Hood

134B. Drawing Workshop II. (2) Two hours of lecture and one and one-half hours of studio per week. Prerequisites: Environmental Design 11A-11B or consent of instructor. Continuation of studio themes, as well as exercises in projection drawings and sectional techniques. Expressionistic modes of graphic communication will be augmented by figure-ground principles and themes of contrast, color, chiaroscuro, and composition. On-site visits to galleries and museums will complement the studio themes. (SP) Staff

135. The Art of Landscape Drawing. (3) Two hours of lecture and four hours of studio per week. This course develops freehand drawing as an integral part of the creative process, and as an expressive design tool. A broad range of exercises is employed to help students progressively gain creativity, skill, and confidence in their drawing. Various media such as ink, colored pencils, and watercolor are explored as a method to design innovative landscapes. A variety of presentation techniques will be investigated for communicating landscape design. In addition to field sketching, there will be excursions to art galleries, artists' studios, and other creative environments. Through the integration of drawing with intuition and imagination, students will be able to bring their visions to reality. (SP) Sullivan

137. Observation, Memory, and History. (3) Three hours of lecture per week. Prerequisites: Environmental Design 11A-11B or consent of instructor. This course will focus on the study, analysis, and recording of classical landscape architecture. The course will use course will be designed to develop a vocabulary grounded on classical principles of proportion which have withstood the test of time. The class will include lectures by the faculty members and the class will also include student presentations, and the preparation of a final notebook summarizing the observations of the student. Readings and requirements vary year to year and are based on topic. (SP) Staff

140. Social and Psychological Factors in Open Space Design. (3) One and one-half hours of lecture and one and one-half hours of discussion per week. User-oriented approach to design. Post-occupancy evaluation as a tool for understanding use of designed open spaces. Design as a communication process. Understanding the functional needs of vulnerable populations—children, elderly, disabled, low-income families. Personal and societal environmental values. (SP) McNally

141A. The American Landscape: Multicultural Difference and Diversity. (3) Three hours of lecture and one hour of discussion per week. This course will explore the impact and contrast the nature, form, and function of the American, African, American Indian, and European American relationships with the American landscape. Traditional patterns of land use within each subculture will be explored, and juxtaposed against the American landscape and ideology. Social patterns of use, perception, attached meaning and sense of place, and the transformation of the environment as the result of social change are some of the topics to be discussed. This course satisfies the American Cultures requirement. (F) Hood

154. Special Topics in Landscape Architecture and Environmental Planning. (1-3) Course may be repeated for credit. One to three hours of seminar per week. Designed to be a forum for presentation of student research, discussions with faculty researchers and practitioners, and examination of topical issues in landscape architecture and environmental planning. Topics will be announced at the beginning of each semester. (F,SP) Staff

160. Professional Practice Seminar. (3) Three hours of seminar per week. Prerequisites: 161 or graduate standing. Survey and analysis of professional practice in landscape architecture focusing on: the context of the practice with dynamic structure, public, private and nonprofit practice, marketing, project management and delivery; the legal parameters of practice—contracts, codes, planning regulations, project approval processes, liability, and economics—budgeting, profits, project development costs, fiscal impacts, and financing. (SP) Staff

170. History and Literature of Landscape Architecture. (3) Three hours of lecture per week. This course surveys the history of landscape architecture in four realms: (1) gardens; (2) urban open space, that is, plazas, parks, and recreation systems; (3) urban and suburban design; and (4) regional and environmental planning. The course will review the cultural and social contexts which have shaped and informed landscape architecture and aesthetics, as well as the environmental concerns, horticultural practices, and technological innovations of historic landscapes. (F) Mozingo

C171. The American Designed Landscape Since 1850. (3) Three hours of lecture per week. This course surveys the history of American landscape architecture since 1850 in four realms: (1) urban open spaces—that is, parks, recreation systems; (2) urban and suburban design; (3) regional and environmental planning; (4) gardens. The course will review the cultural and social contexts which have shaped and informed landscape architecture in the United States since the advent of the public parks movement, as well as the aesthetic precepts, environmental concerns, horticultural practices, and technological innovations of American designers. Students will complete a midterm, final, and a research assignment. Also listed as American Studies C171. (SP) Mozingo

C188. Geographic Information Systems. (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: Some computer experience. Formerly C188X. This course introduces the student to the rapidly expanding field of Geograpic Information Systems (GIS). It addresses both theory and application and provides the student with a dynamic analytical framework within which temporal and spatial data and information is gathered, interpreted, integrated, and manipulated. It emphasizes a conceptual appreciation of the major concepts and principles both of those concepts to contemporary geographical and planning issues. Also listed as Geography C188. (F) Radke
197. Field Study in Landscape Architecture. (2-3) Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor and sponsor. See departmental information sheet for limitations. Supervised experience relative to specific aspects of landscape architecture. Regular individual meetings with faculty and outside sponsor. Reports required. (F,SP) Staff

198. Directed Group Study. (1-4) No more than 4 units may be repeated for credit. Course may be repeated for credit for four years. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Enrollment restrictions apply. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Enrollment restrictions apply. (F,SP) Staff

Graduate Courses

201. Ecological Factors in Urban Landscape Design. (5) Two hours of lecture and six hours of studio per week. Prerequisites: 110, 134A-134B, or consent of instructor. Through lectures, studio problems, research projects, and discussion, this course will explore the challenge and potential incorporating ecological factors in urban contexts. The course focuses on landscape science (ecology, geology, etc.) with the necessitates and mechanisms of the human environment (urban design, transportation, economics, etc.). Lectures and research projects will emphasize innovative and creative thinking solutions to the ecological problems of the human environment. Throughout the semester, reading and discussion sessions will highlight the connections between the broader concerns of the global ecological crisis and landscape design and planning. (F) Kullman, Staff

202. Design of Landscape Sites. (5) Two hours of lecture and six hours of studio per week. Prerequisites: 201 or consent of instructor. A site design studio stressing shaping and coordination of ideas from initial concept to complete design of open space in various contexts. Typical projects will be of an intermediate scale and might include a park, plaza, museum, playground, office, or housing project. Modules on social factors and planting design are included. (SP) Hood, Kullman

203. Landscape Project Design. (5) Three hours of lecture and six hours of studio per week. Prerequisites: 201 or consent of instructor. A site design studio stressing the shaping and coordination of ideas from initial concept to the thorough execution of design ideas at the site scale. Typical projects will focus on the experiential rather than the pictorial. Projects might include a park, plaza, or rehabilitation of a brownfield site. (F) Meyer

C203. Shaping the Public Realm. (3) Five hours of lecture and six hours of studio per week. Prerequisites: Previous design studio or consent of instructor. Formerly 203. This interdisciplinary studio focuses on the public realm of cities and explores opportunities for creating more humane and delightful public places. Problems will be at multiple scales in both existing urban centers and in areas of new growth. Skills in analyzing, designing, and communicating urban design problems will be developed. Studio work will be supplemented with lectures, discussions, and field trips. Visiting professionals will present case studies and will serve on reviews. Also listed as City and Regional Planning C243. (F) Southworth

204. Advanced Project Design. (5) Three hours of lecture and six hours of studio per week. Prerequisites: 201 or consent of instructor. Special topics in the design of shaping of the landscape. The focus of the studio varies from semester to semester. Possible topics include community design, educative environments, landscape as art, park design, or environmental education. For current offerings, see department announcement. (F,SP) Staff

205. Environmental Planning Studio. (3) Three hours of lecture and six hours of studio per week. Prerequisite: 201 or consent of instructor. Application of environmental planning principles to a complex problem involving a variety of environmental criteria and an underlying goal for design. Students will identify needed data, assess environmental developmental problems, weigh competing uses, and prepare an environmental management plan. (SP) Hester

206. Final Project Preparation Studio: Thesis and Research Report. (2) Two hours of studio per week. Prerequisites: 252 and graduate standing. This is a spring studio for students to work on final projects (theses and professional reports). The studio, in conjunction with the field, is meant to train and assist students in thesis or professional project research and help them in finalizing their thesis or professional report topic. The course includes weekly exercise sessions related to thesis research, illustrating, and critiquing landscapes to finally producing a thesis or professional report. (SP) Mozingo

212. Landscape Ecology. (3) Two hours of lecture and one five-hour field trip per week. Prerequisites: Graduating standing, or consent of instructor, Concepts of landscape ecology and their application to environmental planning. Topics include landscape structure, biotic diversity, species flow, redistribution of nutrients and toxic elements, energy flow, landscape change, and landscape management. (F,SP) McBride

221. Quantitative Methods in Environmental Planning. (3) One and one-half hours of lecture and three hours of laboratory per week. Discussion and critique of the application of quantitative methods to environmental planning, and evaluation in environmental planning. Topics to include geographical information systems and data bases, remote sensing, and multivariate analysis. This course emphasizes understanding of the assumptions and data analysis. (SP) Rader

222. Hydrology for Planners. (4) Three hours of lecture and two hours of laboratory per week, plus three days of weekend field trips. This course presents an overview of relevant hydrologic, hydraulic, and geomorphic processes, planning and regulation of water resources, and insight sufficient to coordinate with technical specialists in the field of hydrology. In addition, relevant regulations and policies are reviewed. (SP) Kondolf

223. Introduction to California Landscapes. (1) One hour of lecture/discussion per week plus two field trips (total of four days). Must be taken on a satisfactory/unsatisfactory basis. Introduction to the ecological, visual characteristics, land use, and design history of the major landscape regions in California. (SP) McBride

225. Urban Forest Planning and Management. (3) Three hours of lecture per week, plus two one-day field trips. An introduction to the field of urban forestry, its history, and its role in contemporary towns and cities. Emphasis on planning and management of the urban forest, restoration of old parks, street trees, and community participation. Offered alternate years. (SP) McBride

226. Landscape Design Construction. (2) Two hours of seminar per week. Prerequisites: 121 (may be taken concurrently). The course investigates the process of developing landscape design proposals into constructed landscapes. Emphasis will be placed on understanding the durability of materials and design details, the efficient use of materials, and the ability to evaluate how material selection and detailing can impact the environment. Field trips to construction sites, manufacturing facilities, and built landscapes will be included. (SP) Jewell

227. Restoration of Rivers and Streams. (3) Three hours of seminar per week. Prerequisites: 220, 222, 201 (may be taken concurrently). An introduction to the methods of Environmental Science, Policy, and Management 115A, or Geology 117 with consent of instructor. This course covers the underlying goals and assumptions of river and stream restoration, the techniques employed in these efforts, and emphasizes strategies for evaluation of project success. The course focuses on geomorphic and hydrologic analyses relevant to restoration and enhancement of aquatic and riparian habitat in fresh water systems. Format: lectures by instructor, guest lectures, presentation of student independent projects, and field trips. Course requirement: independent term project involving original research. (F) Kondolf

228. Research in Environmental Planning, Management, and Restoration. (1) Course may be repeated for credit. Two hours of seminar bi-weekly. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Open to all graduate students interested in environmental planning, management, and restoration. (F,SP) McBride

C229. Mediterranean-Climate Landscapes. (1-3) One to three hours of lecture/seminar per studio. Comparative study of environmental conditions and human responses thereto in California and other Mediterranean-climate regions, with intensive treatment of specific landscapes, political, ecological crisis and landscape design and planning. (SP) McBride

C231. Environmental Planning and Regulation. (3) Three hours of lecture per week. This course will examine emerging trends in environmental planning and policy, and the background framework for environmental planning encountered in the U.S. We will also relate the institutional and policy framework of California and the United States to other nations and regions internationally. Emphasis of the course will be on regulating “residuals” as they affect three media: air, water, and land. Also listed as City and Regional Planning C251. (F) Corbun

232. The Landscape as a Sacred Place. (3) Three hours of lecture per week (total of nine days). Visual and cultural analyses of landscapes, inventory procedures for “place” values, and problems related to sustainable design development, with special emphasis on topographically evaluated places. Offered every third year. (SP) Hester

235. Environmental Simulation and Public Communication. (2-4) Two hours of lecture and six hours of laboratory per week. Introduction to the theory of experimental simulation; criteria for a good presentation; case studies in the use of models and media in citizen participation and environmental design. (SP) Bosselmann

C237. The Process of Environmental Planning. (3) Students will receive no credit for C237 after taking Landscape Architecture 237. Three hours of lecture per week. Prerequisites: Landscape Architecture C251. A review of the techniques used in environmental planning, and evaluation of alternate means of implementation in varying environmental and political circumstances. The class will examine and critique a number of well-known environmental planning programs and plans. Lectures and discussion will address recurrent planning problems, such as the limitation of available data, regulatory constraints, public opposition, and fiscal constraints on plans, conflicts among specialists. Also listed as City and Regional Planning C257. (F,SP) Duane

C242. Citizen Involvement in the City Planning Process. (3) Students will not receive credit for C242 after taking City and Regional Planning 206, Interdepartmental Studies 206 Fall 1990, and Interdepartmental Studies 206 Fall 1991. Three hours of lecture/seminar per week. Formerly Interdepartmental Studies 223. An examination of the roles of the citizens and citizen organizations in the city planning process. Models for citizen involvement ranging from advising to community control. Examination of the effectiveness of different organizational models in different situations. Also listed as City and Regional Planning C261. Hester, McNally

C250. Theories of Urban Form and Design. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Theories and patterns of urban form throughout history are studied with emphasis on the role of planning and design in shaping cities and the relationship between urban form and social, economic, and geographic factors. Using a case study approach, cities are evaluated in terms of various theories and performance dimensions. Also listed as City and Regional Planning C240. (F) Southworth

251. Theories of Landscape Architecture and Environmental Planning. (2) Two hours of seminar per week. The focus will be on debate and discussion of central ideas in landscape architecture and environmental planning, drawing on primary literature over many decades of thought. This is not a history course, but it will include some literature that goes back to the early days of the field. This course covers the breadth of thinking in the field, including both environmental planning and landscape design as well as other sub-disciplines. Each week students will lead a debate on a different theoretical issue. (SP) Mozingo/Southworth

252A. Thesis and Professional Project Proposal Seminar. (2) Two hours of seminar per week. Prerequisites: Proposal must be submitted prior semester and approved by LAEP Curriculum Committee. Students learn research methods including bibliographical/Archival research, historical/archival, design exploration, master planning, theoretical, and scientific fieldwork. Students develop a conceptual framework, survey instrument, literature review, and detailed work plan. A full committee and funding proposal due on the last day of class. (SP) McNally

252B. Thesis and Professional Project Proposal Seminar. (2) Two hours of seminar per week. Prerequisites: 252A. Students learn research methods including bibliographical/Archival research, historical/archival, design exploration, master planning, theoretical, and scientific fieldwork. Students develop a conceptual framework, survey instrument, literature review, and detailed work plan. A full committee and funding proposal due on the last day of class. (F) McNally

253. Landscape Architecture and Environmental Planning Colloquium. (1) Course may be repeated for credit. One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Invited lectures by leading professionals in the fields of humanities, natural sciences, engineering, social sciences, planning, city planning, and landscape architecture, and other sub-disciplines. Also listed as Landscape Architecture, Environmental Planning. (1-3) McNally

254. Topics in Landscape Architecture and Environmental Planning. (1-5) Course may be repeated for credit as topic varies. One to five hours of seminar per week. Designed to be a forum for presentation of student research, discussions with faculty researchers and environmental planning practitioners, and examination of topical issues in environmental planning. Topics will be announced at the beginning of each semester. (F,SP) Staff

256. Special Topics in Social Factors in Landscape Architecture. (1-3) Course may be repeated once for credit if the topic varies. One to three hours of seminar per week. Research seminar on selected topics in social factors in landscape architecture. Seminars will focus on the interaction of landscapes and human societies, as well as social science methods appropriate to landscape analysis. Seminars will include lectures by the faculty member offering the course, guest lecturers, student presentations, and discussions. Readings and requirements vary year-to-year based on the topic and instructor. (F,SP) Staff

257. Special Topics in Design. (1-3) Course may be repeated for credit as topic varies. One to three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. Research seminar on selected topics in landscape design. Seminars will focus on the theoretical foundations and practical applications of design and planning methods, as well as emerging issues in the discipline. Seminars will include lectures by the faculty member offering the course, guest lecturers, student presentations, and discussions. Readings and requirements vary year-to-year based on the topic and instructor. (F,SP) Staff

258. California Water: An Interdisciplinary Seminar. (1) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Graduate standing or satisfactory/unsatisfactory basis. This seminar studies California water issues from an interdisciplinary perspective, building upon the established California Colloquium on Water, to increase understanding and appreciation of water resources and to contribute to informed decision-making about water in California. Each semester four distinguished scholars in the fields of humanities, natural sciences, engineering, social sciences, planning, and landscape architecture present four to ten lectures to students, faculty, and the general public. Students in the seminar attend the colloquium lectures, complete background readings, and meet for two hours on alternate weeks in the seminar session to discuss issues raised by the colloquium presentations and related readings. Course requirements: attendance at colloquia, attendance and participation in seminars, completion of course readings, brief written critiques of lectures, and a short presentation of literature relevant to colloquium topics. (F,SP) Kondolf

271. The Literature of the Landscape Architecture Profession. (2) Two hours of seminar per week. Prerequisites: Theories of Landscape Architecture, the discipline's primary American professional magazine. Beginning with the premier 1911 issue, five- to ten-year blocks of time will be studied to identify major values, theories and methods covered by the magazine in each given period. The content of the magazine articles will be related to other design and planning publications of the same period. The intent is to trace and understand the evolution of the discipline's architecture profession and how it has responded to broader cultural movements. Topics may include aesthetics, ecological determinism, artistic movements, social values, professional codes, and the role of the professional in public life. (F) Jewell

295. Supervised Research in Landscape Architecture and Environmental Planning. (2) Any combination of 295 or 297 may be taken for a total of six units maximum toward the M.L.A. degree. Hours to be determined by each semester. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and appointment as a research assistant. Supervised experience on a research project in landscape architecture and environmental planning. Required attendance at departmental meetings with faculty sponsor required. See departmental sheet for other limitations. (F,SP) Staff

296. Directed Dissertation Research. (1-12) Course may be repeated for credit. Hours to be determined. Three hours per unit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Advancement to Ph.D. candidacy. Open to qualified students who have been advanced to candidacy for the Ph.D. degree and are directly engaged upon the doctoral dissertation. (F,SP) Staff

297. Supervised Field Study. (2-3) Any combination of 295 or 297 may be taken for a total of six units maximum toward the M.L.A. degree. Hours to be determined. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor and sponsor. Supervised experience relative to specific aspects of practice in landscape architecture and/or environmental planning, with meetings with faculty and outside sponsor as well as final report required. See departmental information sheet for other limitations. (F,SP) Staff

298. Group Study. (1-4) Course may be repeated for credit. Hours to be determined. Special group studies. Topics to be announced at the beginning of each semester. (F,SP) Staff

299. Individual Research. (1-6) Course may be repeated for credit. Hours to be determined. Prerequisites: Graduate standing and consent of instructor. Research work conducted preparatory to completion of the thesis or professional project, as well as other approved research. A maximum of six units will be counted toward the M.L.A. degree. The six units allow for four units maximum for thesis or professional project research, and two units maximum for other approved research. See departmental information sheet for other limitations. (F,SP) Staff

601. Individual Study for Master’s Students. (1-8) Course does not satisfy unit or residence requirements for master’s degree. Hours to be determined. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for doctor’s degree. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff

Professional Courses

300. Supervised Teaching in Landscape Architecture and Environmental Planning. (2) Course may be repeated for credit as topic varies. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and appointment as a teaching assistant. Supervised teaching experience in undergraduate courses. Regular meetings with faculty sponsor. See departmental sheet for other limitations. (F,SP) Staff

301. Methods of Teaching in Landscape Architecture and Environmental Planning. (2) Two hours of seminar/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Advancement to graduate student standing. This course presents general pedagogical principles and methods adapted to teaching in the fields of landscape architecture, environmental planning, and environmental sciences. The format varies from week to week, but involves presentations by faculty and experienced graduate student instructors (GSIs), guided discussions, sharing of teaching experiences for current GSIs, discussion of readings on effective teaching, viewing of videos, and presentation by GSIs of sections for upcoming weeks. Required of all graduate students to be eligible for appointment as GSIs; may be repeated to fill first GSI position for entering students. Topics include learning objectives, lesson plans, active learning, group learning, classroom diversity, assessing student learning, giving constructive feedback, teaching in the studio environment, engaging students through field exercises, grading, and composing effective tests. (F,SP) Staff
Latin American Studies

(College of Letters and Science)

Group Major Office: International and Area Studies, 101 Stephens Hall, iastp@berkeley.edu, (510) 642-4466
Chair: Estelle Tarica
Faculty Advisers
Miguel Altier (Environmental Science, Policy, and Management)
Emilie Bergmann (Spanish and Portuguese)
Irene Bloomfield (Anthropology)
Carolyn Blum (Law)
Stanley Brandes (Anthropology)
Natalia Escuin (Spanish and Portuguese)
A. Roger Byrne (Geography)
Claudia Carr (Environmental Science, Policy, and Management)
Ignacio Chapela (Environmental Science, Policy, and Management)
Lydia Chavez (Journalism)
Margaret Cushing
Ruth Bereis Collier (Political Science)
Rene Davids (journalism)
Alan de Janvry (Agricultural and Resource Economics)
Laura Enriquez (Sociology)
Peter Evans (Sociology)
Sylvia Guendelman (Public Health)
William Hanks (Anthropology)
Christine Hastorf (Anthropology)
Corey Hayden (Anthropology)
Mark Healey (History)
Percy Hintzen (American Studies)
Michael Johns (Geography)
Rodriguez Joyce (Anthropology)
Michel Laguerre (African American Studies)
Linda Lewin (History)
Beatriz Marz (Chicano Studies/Geography)
Francine Masiello (Spanish and Portuguese/Comparative Literature)
David Montejano (Ethnic Studies)
Kurt Organista (School of Social Welfare)
Genan Padilla (English)
Laurs Perez (Ethnic Studies)
John Rabasa (Spanish and Portuguese)
Julio Ramos (Spanish and Portuguese)
Elizabeth Sadoval (Agricultural and Resource Economics)
Martin Sanchez-Jankowski (Sociology)
Alexander Shaver
Nancy Schieper-Hughes (Anthropology)
Harley Shakem (Education)
Candace Stavridis (Spanish and Portuguese)
Stephen Small (African American Studies)
Estelle Tarica (Spanish and Portuguese)

The Program in Latin American Studies is designed to provide a balanced multidisciplinary curriculum in the history, culture, and society of Latin America for students wishing a broader perspective of the area than is usually available through a departmental major. The program may be of particular interest to students planning to enter business, government, or international agency service; students preparing to teach social science or languages in the secondary schools; or students preparing for graduate and professional schools.

From a rich variety of offerings within and across departments, there is a wide range of possibilities to suit the interests of students while completing an appropriately designed course of study. Students are aided in combining courses in a systematic way by an interdepartmental committee of faculty members. Spanish and Portuguese are required for all the major. Students must gain an intermediate level of proficiency in one language and an elementary knowledge of the other. In addition, students pursue a multidisciplinary course of study that includes the history and literature of the region. In the procedural aspects of organizing an under-graduate plan of study, students in the program are aided by participating faculty members from several departments and programs, the faculty coordinator of the major group, student affairs officers in the International and Area Studies Teaching Program office, and teaching associates working in the program.

The Group Major

Declaring a major in Latin American studies follows guidelines established by the College of Letters and Science. Students wishing to declare Latin American studies:

1. must have completed LAS 10, which is offered fall semester only, with a grade of C or better;
2. must have attended a major declaration workshop;
3. must not be in their final semester of undergraduate work; and
4. are encouraged to have completed at least four semesters of college-level Spanish or Portuguese, or the equivalent.

Students are reminded that:
1. no coursework for the major can be taken on a pass/failed basis, and
2. no course may be used to satisfy more than one major requirement.

Applications are available in the IASTP Office, 101 Stephens Hall. They must be signed by the LAS faculty chair and returned to the IASTP Office.

Minor

Latin American Studies does not offer a minor program. However, other minor programs taken in conjunction with Latin American studies are encouraged. No more than one upper-division course can be used to satisfy requirements in both a major and a minor.

Double Majors

Double majors must be approved by the Dean of the College of Letters and Science. No more than two upper-division courses may be used to satisfy requirements in both majors.

Courses Outside L&S

No more than three courses outside the College of Letters and Science may be used to fulfill major group requirements.

Study Abroad

The use of coursework taken at institutions outside the United States to fulfill major requirements must be approved by the faculty chair and is restricted to the equivalent of three-semester-length upper-division courses. However, courses taken to fulfill the foreign language requirement and lower division prerequisites for the group major are not included in this restriction.

Transfer Courses

A maximum of three upper-division courses taken at other institutions (including those of the UC Education Abroad Program) may be transferred into the major. These courses will be accepted only as three of the nine required upper-division courses (regardless of unit value) and must be approved by the Office of Undergraduate Admissions and approved by the chair of LAS. Courses used to fulfill foreign language and lower division requirements are not included in this restriction but must be approved by an adviser.

Honors Program

To graduate with honors from the group major in LAS, students must enroll in the two-semester honors seminar, IAS H102 (fall only) and LAS H195 (spring only), and must obtain GPA of 3.6 in the major and 3.5 in overall university coursework. The honors seminar (LAS H195) is taken in addition to a student’s regular coursework for fulfilling requirements for the major and culminates in the writing of a senior thesis. The thesis is read by the LAS H195 instructor and at least one other faculty member who is selected by the student in consultation with the thesis instructor. Eligibility for participating in the Honors Program in the IAS office. Note: There is no guarantee that students accepted into the honors program will graduate with honors. Honors recommendations are made after graduation and are based on scholarship (including, but not limited to) major GPA, grades received for IAS H102 and LAS H195, and faculty adviser recommendations.

Course Plan

The considerable flexibility within the Latin American studies major encourages students to construct a program appropriate to their specific intellectual and geographic interests. The overarching structure of the major, however, requires that each student must have a three-tiered program. First, two lower division courses are completed in which LAS 10, Introduction to Latin American Studies, is critical. Second, language proficiency in both Spanish and Portuguese is required. Students choose one of these languages as their primary language and complete coursework equivalent to four college-level semester courses. The secondary language requirement is completed through coursework equivalent to two college-level semesters. Third, no fewer than 30 units in upper division courses are required, including two Latin American literature/culture courses, two Latin American history courses, and five elective courses through which the student builds a working knowledge of the cultures, history, literature, and economy of Latin America. These courses are chosen in consultation with a faculty adviser. In addition, students may enroll in the Honors Program, which consists of a methods course (IAS H102) and an honors thesis seminar (LAS H195).

Lower Division

Required Courses: There are two required lower division courses: LAS 10 and either History 8A or 8B. LAS 10 is offered every fall since it provides the essential background for upper division work. History 8A (colonial period; offered fall only) or History 8B (colonial period; offered spring only) provide a historical context for further study in the major.

Foreign Language Requirement

Students must attain an intermediate level of competency in a primary language (either Spanish or Portuguese may serve as the primary language) equivalent to four college-level semesters of instruction and an elementary level of competence in a secondary language equivalent to two college-level semesters of instruction. Coursework may consist of any combination of high school, college, summer program, or college-level study abroad program. This requirement may be satisfied by a proficiency examination or by the completion of appropriate coursework with a grade of C or better. Please consult with a faculty adviser or with an appropriate departmental representative before the current acceptable equivalency exams or coursework.

Primary language requirement: Completion of one of the following sequences or the equivalent: Spanish 1, 2, 3, 4 or Portuguese 101A, 101B, 102, and 103.

Secondary language requirement: If the primary language is Spanish, the student also is required to attain an elementary level of proficiency in Portuguese. If the primary language is Portuguese, the student must attain an elementary level of proficiency in Spanish. The secondary language requirement may be fulfilled by one of the following sequences or the equivalent: Portuguese 101A and 101B or Spanish 1 and 2.

Upper Division

No fewer than 30 units in upper division courses are required, including two Latin American literature/culture courses, two Latin American history courses, and five elective courses.

1. Latin American Literature and Culture (two courses): For students whose primary language is Spanish, one course must focus on the colonial period (pre-1800) and one course on 19th-20th century literature. Both courses must be taught in Spanish. Colonial period choices are Spanish 104A, 135, or the equivalent. Modern literature choices are Spanish 104B, 135, or the equivalent. For students whose primary language is Portuguese, either Portuguese 104 or 128 must be
taken, plus one additional Portuguese literature class, such as Portuguese 107, 135, or the equivalent. Both classes must be taught in Portuguese. See the chair or a group adviser for approval of class choices.

II. Latin American History (two courses): Students select from the following: History 100, 103E, 140A, 140B, 141A, 141B, 143, 146, Latin American Studies 150. LAS 150 requires prior approval because it is an Honors seminar. Only history-related topics will be approved.

Upper Division Elective Courses (Five Courses)

I. Methods (one course). The methodology requirement is designed to give each LAS major a set of analytical skills appropriate to the disciplinary and core focus of their individual program. The methods course can be drawn from any of two broad categories—statistical methods or research design. The selection of the most appropriate class for each student should be undertaken in close consultation with an adviser. The first category focuses on advanced statistical methods and computer-assisted data analysis. A lower division statistics course is strongly recommended as a prerequisite to any of these courses. The second category focuses on research design and field methods. It is oriented to questions of survey design, field analysis, qualitative methods, and approaches. An introductory course in statistics is also recommended as a prerequisite to these courses. Lists of approved courses can be obtained from the IAS office.

II. Four Additional Courses. Students choose their remaining four courses from an approved list available from the IAS office. At least 50 percent of each course’s content must be devoted to Latin America. As this is an interdisciplinary major, the four courses must represent at least two disciplines other than history and literature. No more than two elective courses may be taken from the same department. Students can choose to focus all four courses around a central theme (e.g., gender and society, religion and society, popular culture, or development) or a geographical region (e.g., Mexico, Central America, or the Caribbean), although this is not required.

Graduate Program

Master’s Degree. The M.A. program in Latin American Studies is a two-year program that provides an opportunity for interdisciplinary work on Latin America from a well-defined interdisciplinary perspective. The M.A. is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to majors. Content and unit values vary from course to course. (F,SP)

150. Advanced Studies in Latin American Studies. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced research in current issues or regions of Latin American studies. The course will focus on specific areas or topics with appropriate comparative material included. Topics change each semester. (F,SP)

192. Senior Thesis. (3,4) Hours to be arranged. Prerequisites: Senior standing. This course is designed to provide a vehicle for undergraduate students who do not participate in the departmental honors program but are interested in writing a Latin American studies topic. The paper should be approximately 30-50 pages in length; the topic must be agreed upon in advance by both the students and faculty sponsor. Requires weekly consultations with faculty sponsor. (F,SP)

H195. Senior Honors Thesis Seminar. (4) Three hours of seminar per week. Prerequisites: Internationa l and Area Studies 102 and consent of instructor; senior standing. The honors student is required to research and write a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor. A pass/fail grade is not an option. (F,SP)

197. Field Studies. (1-4) Course may be repeated for credit. Regular individual meetings. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; upper division standing. Supervised field experience relevant to specific aspects of Latin American studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

198. Directed Group Study. (1-4) Course may be repeated for credit. Group meetings to be announced. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Topics vary from semester to semester. (F,SP)

199. Supervised Independent Study and Research for Undergraduates. (1-4) Course may be repeated for credit. Individual meeting to be announced. Must be taken on a passed/not passed basis. Prerequisites: Written proposal must be approved by faculty advisor; consent of instructor. Enrollment restricted by regulations of the college. (F,SP)

Graduate Courses

200. Latin American Studies Seminar. (1) Course may be repeated for credit. One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Mandatory for Latin American studies graduate students. Seminars by faculty and advanced graduate students on their current research on Latin America. (F)

230. Cross-Listed Topics. (1-4) Course may be repeated for credit. Variable. Prerequisites: Consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. The course is a broad survey of cross-listed courses offered through other departmental programs, the content of which is applicable to the graduate program in Latin American studies. Content varies from course to course. (F,SP)

232. Directed Study and Research. (1-4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Three hours of seminar per week. Seminar will take a multidisciplinary approach to specific geographical areas with appropriate comparative material included. Topics change each semester. (F,SP)

II. Latin American History (two courses): Students select from the following: History 100, 103E, 140A, 140B, 141A, 141B, 143, 146, Latin American Studies 150. LAS 150 requires prior approval because it is an Honors seminar. Only history-related topics will be approved.

Upper Division Elective Courses (Five Courses)

I. Methods (one course). The methodology requirement is designed to give each LAS major a set of analytical skills appropriate to the disciplinary and core focus of their individual program. The methods course can be drawn from any of two broad categories—statistical methods or research design. The selection of the most appropriate class for each student should be undertaken in close consultation with an adviser. The first category focuses on advanced statistical methods and computer-assisted data analysis. A lower division statistics course is strongly recommended as a prerequisite to any of these courses. The second category focuses on research design and field methods. It is oriented to questions of survey design, field analysis, qualitative methods, and approaches. An introductory course in statistics is also recommended as a prerequisite to these courses. Lists of approved courses can be obtained from the IAS office.

II. Four Additional Courses. Students choose their remaining four courses from an approved list available from the IAS office. At least 50 percent of each course’s content must be devoted to Latin America. As this is an interdisciplinary major, the four courses must represent at least two disciplines other than history and literature. No more than two elective courses may be taken from the same department. Students can choose to focus all four courses around a central theme (e.g., gender and society, religion and society, popular culture, or development) or a geographical region (e.g., Mexico, Central America, or the Caribbean), although this is not required.

Graduate Program

Master’s Degree. The M.A. program in Latin American Studies is a two-year program that provides an opportunity for interdisciplinary work on Latin America from a well-defined interdisciplinary perspective. The M.A. is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to majors. Content and unit values vary from course to course. (F,SP)

150. Advanced Studies in Latin American Studies. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced research in current issues or regions of Latin American studies. The course will focus on specific areas or topics with appropriate comparative material included. Topics change each semester. (F,SP)

192. Senior Thesis. (3,4) Hours to be arranged. Prerequisites: Senior standing. This course is designed to provide a vehicle for undergraduate students who do not participate in the departmental honors program but are interested in writing a Latin American studies topic. The paper should be approximately 30-50 pages in length; the topic must be agreed upon in advance by both the students and faculty sponsor. Requires weekly consultations with faculty sponsor. (F,SP)

H195. Senior Honors Thesis Seminar. (4) Three hours of seminar per week. Prerequisites: International and Area Studies 102 and consent of instructor; senior standing. The honors student is required to research and write a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor. A pass/fail grade is not an option. (F,SP)

197. Field Studies. (1-4) Course may be repeated for credit. Regular individual meetings. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; upper division standing. Supervised field experience relevant to specific aspects of Latin American studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

198. Directed Group Study. (1-4) Course may be repeated for credit. Group meetings to be announced. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Topics vary from semester to semester. (F,SP)

199. Supervised Independent Study and Research for Undergraduates. (1-4) Course may be repeated for credit. Individual meeting to be announced. Must be taken on a passed/not passed basis. Prerequisites: Written proposal must be approved by faculty advisor; consent of instructor. Enrollment restricted by regulations of the college. (F,SP)

Graduate Courses

200. Latin American Studies Seminar. (1) Course may be repeated for credit. One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Mandatory for Latin American studies graduate students. Seminars by faculty and advanced graduate students on their current research on Latin America. (F)

230. Cross-Listed Topics. (1-4) Course may be repeated for credit. Variable. Prerequisites: Consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. The course is a broad survey of cross-listed courses offered through other departmental programs, the content of which is applicable to the graduate program in Latin American studies. Content varies from course to course. (F,SP)

232. Directed Study and Research. (1-4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Three hours of seminar per week. Seminar will take a multidisciplinary approach to specific geographical areas with appropriate comparative material included. Topics change each semester. (F,SP)
available course offerings. The course will involve directed readings and writing of a report. (F,SP)

298. Directed Graduate Group Study. (1-4) Course may be repeated for credit. Group meetings to be announced. Prerequisites: Consent of instructor. Individual study for graduate students in Latin American studies. Intended to provide directed reading and supervision for thesis development or special study in Latin American area. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Topics vary from semester to semester. (F,SP)

299. Individual Study. (1-4) Course may be repeated for credit. Three hours of lecture per week must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidacy for the Ph.D. May not be used for unit or residence requirement for the doctoral degree. (F,SP)

Law
(School of Law)

Office of Admissions: 5 Boalt Hall, (510) 642-2274
Dean: Christopher Edley Jr., J.D., M.P.P.
Associate Deans: Howard A. Shelanski, Ph.D., J.D.; Jonathan Simon, Ph.D. and Volker, Ph.D.
Stephen D. Sugarman, J.D.
Kathleen Yaron Hovey, J.D., M.L.I.S.
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Victoria Ortiz, J.D.
Vice Chair, Jurisprudence and Social Policy: Carl D. Claflin, Jr., Ph.D., J.D.
Professors
Kathryn Abrams (The Herma Hill Kay Distinguished Professor of Law), J.D., Constitutional law, feminist political theory, ethics, and women's rights
Catherine Albiston, M.A., J.D., Ph.D. Civil Procedure, environmental law and policy, and public interest law
Alan J. Auerbach (The Robert D. Burch Professor of Law; Director, Robert D. Burch Center for Tax Policy and Public Finance), Ph.D. and law economics
Robert MacCoun, M.A., J.D. and law and psychology
Susan Batesen, J.D., M.L.I.S. American legal history
Robert C. Barring Jr. (The Walter Perry Johnson Professor of Law), J.D., M.L.S. Chinese law, legal research and writing, and public law
Eric Biber, J.D., M.S. Conservation biology, environmental law, and use planning, and public lands law
Stephen R. Bundy, J.D. Alternative dispute resolution, ethics, and civil procedure
Richard M. Buschbaum (The Jack E. Hashman Professor of International Law), LL.B., LL.M. Corporations, international law, international transactions
David W. Cohn (Reese Robbins Professor of Law), M.Sc., J.D., Dip., Dr.Jur. International environmental law, international organizations, ocean law, and public law, policy and public international law, resolution of private international disputes
Jesse H. Choper (The Earl Warren Professor of Public Law), LL.B., D.D.H.U., Constitutional law, corporations, constitutional law, comparative law, and the national political process
Robert D. Doster (The Herman F. Selvin Professor of Law; Director, Program in Law and Economics), M.A., Ph.D. Contracts, law and anthropology, regulated industries (banking)
Malcolm M. Feeley (The Clare Clements Dean’s Chair Professor of Law), M.A., J.D. Clinical education, civil rights, and social science
Laurel Fletcher, J.D. Human rights, clinical legal education
Phillip Friskey (The Richard W. Jennings Professor of Law), J.D. Civil rights, federal and state constitutional law, Indian law
James Fried, A.M., J.D. Corporate finance, corporations, creditors and debtor’s rights, bankruptcy, and law and economics
James R. Gordy (The Shannon Cecil Turner Professor of Jurisprudence), M.B.A., J.D., Comparative law, contracts, property, torts, and bankruptcy
Andrew T. Guzman, J.D., Ph.D. Arbitration, commercial law, contracts, international trade, torts, and economics
Ian F. Hacking, M.A., M.P.A., J.D. Property, critical race theory, race and American law
Angela P. Harris, M.A., J.D. Civil rights, criminal law, critical race theory, gender, race, and gender
Anne M. Joseph, M.Phil., J.D. Ph.D. Administrative law, legislation, economics of regulation, science and the law
Robert A. Kanapay, LL.B., Ph.D. Constitutional law, legal institutions, environmental law enforcement, jurisprudence, regulation
Herma Hill Kay (The Barbara Nachtrieb Armstrong Professor of Law), J.D. Conflict of laws, community property, family law, and society
Linda Hamilton Krieger, J.D. Employment discrimination, legal profession, decision making and professional judgment, civil rights, employment law, evidence, problem solving, sex discrimination
Christopher L. Kutz, J.D., Ph.D. Moral and political philosophy, philosophy of law, and law and science
Gillian Lester, LL.B., J.S.M. Employment law, policy, and contracts
David Lieberman (The Jeffrey E. Payser Professor of Law and History), M.A., Ph.D. British legal history, legal theory
Goodwin Liu, J.S.C. Constitutional law, immigration law, education, Social Security, and social welfare
Kristin Luker, Ph.D. Abortion, law and medicine, and law and sexuality, women and the law
Robert MacCoun, M.A., J.D. and law and psychology
Laurent Mayblin (The Walter Perry Johnson Professor of Civil and Criminal Law Collection: The Lloyd M. Robbins Professor), J.D., D.E.A. Docteur en Droit, Comparative law, jurisprudence, legal history, Roman law
Peter S. Menell, M.A., J.D. Environmental law and policy, intellectual property, law and economics
Robert P. MerGES (The Wilson Sonsini Goodrich and Rosati Professor of Law and Technology, Director, Berkeley Center for Law and Technology), J.D., J.S.D., LL.M. Contracts, patents
Rachel F. Moran (The Robert C. and Leslie-Kay Raven Professor of Law; Executive Committee Member, Center for Social Justice), bilinguism, civil rights, and law and education, torts
Deindre Mulligan, J.D. First amendment, Internet technology, privacy
Eric Murphy, J.D. Appellate law, criminal law and evidence
Melissa Murray, J.D. Family law
Philippe Nonet, Docteur en Droit, Ph.D. Jurisprudence
Andrea L. Peterson, J.D. Land use, property, takings clause
Robert Pincus (The Edward D. Halbach Jr. Professor of Law), J.D., Director, Center for Economic and Social Justice, International law, property law, and public policy
Daniel L. Rubinfeld (The Robert L. Bridges Professor of Law and Professor of Economics; Director, Program in Law and Economics), M.S., Ph.D. Antitrust, economics, and public policy, economics of legal rules and institutions
Pamela Samuelson (The Herman E.不断完善 Professor of Law and Information; Chancellor’s Professor of Law and Information; Dean, Berkeley Law Center), M.A., Ph.D., and law and economics, first amendment, computer law, and public policy
Paul Schwartz, J.D. Information privacy, information law
Jeffrey Selbin, J.D. Clinical education, community law, family law, legal service, public benefits
Elizabeth Semel, J.D. Criminal law and procedure, capital punishment
Martin M. Shapiro (The James W. and Isabel Coffroth Martin M. Shapiro Professor of Law), J.D. Corporate law, international law
Robert H. Cole (Emeritus), J.D., LL.B.
Sanford H. Kadish (Emeritus), J.D.
Paul J. Mishkin (Emeritus), J.D.
Charles D. Weisselberg, J.D.
Philip E. Johnson (Emeritus), J.D.
Jan Vetter, LL.B. Civil procedure, complex civil litigation
Jeffrey Selbin, C.E.P., J.D. Clinical legal education, public interest law, and social justice
Mark S. Lemann, J.D. Clinical education, women not only for the practice of law but also for all the varied roles lawyers perform in modern society. The law school prides itself on creating a challenging course of study that imparts the theoretical and practical skills necessary for effective, creative, and responsible legal counseling and advocacy. To this end, Berkeley Law’s curriculum is continually evolving. It currently includes specialized curricular programs in business, law and economics; environmental law; international and comparative legal studies; health and technology; and social justice and public interest.

The school is a member of the Association of American Law Schools and is accredited by the American Bar Association. Its graduates are qualified to become advocates for admission to practice in any state of the United States. Berkeley Law does not require or even recommend a specific pre-law major. To prepare for law school, students should take courses that help them develop written and oral communication skills; increase analytical and problem-solving skills; open their horizons to the humanities and social sciences in order to understand the social context within which legal problems arise; and acquire a general understanding of economics, business, and the professions that relate to the economic functioning of society.

In selecting specific courses, consultation with an undergraduate adviser may be desirable. Berkeley Law seeks a student body with a broad set of interests, backgrounds, life experiences, and perspectives. The school also offers programs, mainly for foreign-educated attorneys, that lead to the degree of Master of Laws (LL.M.) or the degree of Doctor of the Science of Law (J.S.D.).

For further information, contact the Berkeley Law Admissions office at (510) 642-2274 or visit law.berkeley.edu.

Jurisprudence and Social Policy Program

Berkeley Law is unique among major U.S. law schools in housing its interdisciplinary graduate program in the social, philosophical, and humanistic study of law, leading to M.A. and Ph.D. degrees in jurisprudence and social policy (JSP). The JSP program combines the study of law and legal institutions through the perspectives of several disciplines, including history, economics, philosophy, sociology, and political science. The first law and policy programs of its kind in North America, the JSP Program remains the clear leader of a vibrant and growing body of such programs, because of its deep curricular resources and its scholarly accomplishment.

B prefix=language course for business majors economics
H prefix=honors course
R prefix=course satisfies R&RC requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

Law / 335

The UC Berkeley School of Law offers a broad three-year curriculum leading to the Juris Doctor (J.D.) degree. Berkeley Law educates men and women not only for the practice of law but also for all the varied roles lawyers perform in modern society. The law school prides itself on creating a challenging course of study that imparts the theoretical and practical skills necessary for effective, creative, and responsible legal counseling and advocacy. To this end, Berkeley Law’s curriculum is continually evolving. It currently includes specialized curricular programs in business, law and economics; environmental law; international and comparative legal studies; health and technology; and social justice and public interest.

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Members of the Berkeley Law faculty with primary responsibility for the JSP Program are trained in a variety of academic disciplines, and also are affiliated with other Berkeley departments and research centers.

Additional information is available on the JSP web site at law.berkeley.edu/academics/jsp. To request an application, write to Graduate Assistant, Jurisprudence and Social Policy Program, UC Berkeley School of Law, University of California, Berkeley, Berkeley, CA 94720-2150; e-mail: jsp@berkeley.edu.

Course Descriptions

The School of Law offers a curriculum rich in traditional law subjects, as well as emerging, cutting-edge fields. Current course offerings are listed on the School of Law web site at law.berkeley.edu.

Legal Studies

(School of Law)

Program Office: 2240 Piedmont Avenue, (510) 642-4038 ls.berkeley.edu/dept/legal

Program Overview

The legal studies major is under the academic supervision of the School of Law faculty.

Program Coordinator: Charles McClain Jr., Ph.D., J.D.

The Major

The legal studies major provides undergraduate students with an opportunity to become familiar with legal ideas, legal institutions, and the legal process. It is designed to provide tools for reasoned appraisal of how the law works and of the policies that underlie it. The major is based firmly on the view that the study of law and justice has a rich humanistic tradition and that its pursuit can encourage sustained reflection on fundamental values.

Legal studies courses are taught by members of the School of Law faculty, including humanities scholars and social scientists who teach in the graduate program in jurisprudence and social policy (JSP). The courses build on the contributions of philosophy, history, sociology, political science, economics, psychology, and anthropology, as well as the law. It should be noted that legal studies is a liberal arts major in the College of Letters and Science. The major was not established for the purpose of preparing students for law school. It is designed for undergraduate students who are interested in law as a field of critical inquiry, irrespective of their ultimate career objectives.

Lower Division Requirements. One term of coursework is required in each of the following areas: introductory statistics, introductory economics, introductory philosophy, and European history. Students may declare the major after completing coursework from two of the four areas. These courses must be taken for a letter grade; the cumulative grades must be 2.0 or better. A list of courses offered at Berkeley which satisfy these prerequisites is available from the JSP Program office and the Legal Studies web site.

Upper Division Requirements. A minimum of 32 upper division units is required for completion of the major. All of these units must be taken for a letter grade. Students must complete one course from each of the following four areas: (1) Legal and Social Theory; (2) Historical/Comparative; (3) Principles and Problems of Substantive Law; and (4) Administration of Justice. The remaining units may be completed either with courses from within the department, or with up to three courses from an approved list of law-related courses offered by other departments.

The rationale for the structure of the legal studies curriculum becomes apparent if a few words are said about beaching of the course groupings referred to above. The Area 1 requirement insures that all students are exposed to conceptual analysis and broad intellectual perspectives. Area 2 courses are required to assure that students have the capacity to draw on the insights of legal traditions other than their own. The courses from Area 3 are meant to acquaint students with selected forms of legal reasoning. Thus, students must have familiarity with some of the important aspects of legal procedure or, more broadly, legal process. These courses use relevant insights from the social sciences (e.g., organizational theory) to illuminate the dynamics of law-making, adjudication, and implementation.

Honors Program. With consent of the major adviser, a student majoring in legal studies with an overall UC Berkeley GPA of 3.3 and a GPA of 3.5 in legal studies, may be admitted to the Honors Program. The honors student is required to first enroll in LS198 Honors Seminar during the fall semester, then in H195A the following semester to prepare an honors thesis. Further information on the major in legal studies may be obtained from the program office and the web site.

Only some of the following courses are offered in any given year. Consult the online Schedule of Classes for up-to-date information on course offerings.

Lower Division Courses

19AC. Moral Politics and Legal Culture. (3) Two hours of lecture and one hour of discussion per week. This lower division course focuses on the use of the law to resolve major social and policy conflicts. It explores the question whether using the legal system to address these disputes may introduce elements of a common vision and common values into conflicts, affecting participants on all sides. Students will collaborate to research legal questions behind major moral conflicts. This course satisfies the American Cultures requirement. (F,SP) E/VP/HS/NT/HP/GE Honor.

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students an introduction to an intellectual and/or legal topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. 

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 units. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for students to engage in critical discussion of core courses and new ideas with their faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit. Consent of department is required. See the “Introduction to Courses and Curricula” section of this catalog. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Small group instruction in topics not covered by regular scheduled courses. Topics may vary from year to year. (F,SP)

Upper Division Courses

103. Theories of Law and Society. (4) Three hours of lecture and one hour of discussion per week. An historical examination of major interpretations of law, morals and social development, with special emphasis on the social thought of the 18th and 19th centuries and including the writings of Marx, Maine, Durkheim, Weber, and other contemporary figures.

105. Theoretical Foundations of Criminal Law. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Sophomore standing. Criminal law involves fundamental questions which have occupied philosophers over the years. In this course, we will discuss a selection of articles that bring to bear, such a philosophical perspective on important aspects of criminal law. Topics include justification of punishment, foundations of blame and responsibility, substantive values protected by criminal law, significance of actual harm, liability of groups and other collectivities, and virtues and limits of the rule of law. (F,SP)

107. Theories of Justice. (4) Three hours of lecture and one hour of discussion per week. Major perspectives in social and economic thought, e.g., natural law, natural right, laissez faire, “possessive individualism,” contractualism, pluralism, as they affect contemporary discussion of “higher law,” fairness, civic competence, and distributive justice.

109. Aims and Limits of the Criminal Law. (4) Three hours of lecture and one hour of discussion per week. Analysis of the capacity of criminal law to fulfill its aims. What are the aims of criminal law? How are they assigned relative priority? What principles can be identified for evaluating the effort to control disapproved activities through criminal law? (F,SP)

111. The Making of Modern Constitutionalism. (4) Three hours of lecture and one hour of discussion per week. Historical examination of the emergence of “constitutionalism” as an authoritative approach to the study of law and politics; coverage from the 18th to 18th centuries, concluding in discussion of the debate over ratification of the U.S. Constitution. (F,SP)

116. Legal Discourse 1500-1700. (4) Three hours of lecture and one hour of discussion per week. This course focuses on the history of legal thought and discourse from the late medieval period to the Enlightenment. Students will be provided with an introduction to the relationship between legal thought and intellectual developments and the relationship between political and constitutional developments and legal discourse. Although the emphasis is on English law, there will be some consideration of differences between English and continental European legal thought.

120. Philosophies of Punishment: Ancient to Modern. (4) Three hours of lecture and one hour of discussion per week. A comparison of the ancient and modern understanding of punishment prevailing in Anglo-American thought and in former cultures such as Medieval Europe, Ancient Israel, and Ancient Greece. The topics include wrongdoing, suffering, deterrence, vengeance, punishment, and collective responsibility. Most of the readings are in literary works such as the Greek tragedies. (F,SP)

121. Law in the Bible. (4) Three hours of lecture and one hour of discussion per week. Topics include law as one of the divine commands, the divine ordering of the creation, God’s historical plan, wise maxims for successful living, the superseding of law by grace and divine freedom. Nearly all of the assigned readings are in the Bible. M. Smith

140. Property and Liberty. (4) Three hours of lecture and one hour of discussion per week. This course will explore the relation between property law and limits of liberty in different cultures and at different times. The course will cover theories of property law,
slavery, the clash between aboriginal and European ideas of property, gender roles and property rights, common property systems, zoning, regulatory taking on the Internet. Readings will include legal theorists, court cases, and historical case studies. (F,SP)

141. Property, Privacy, and Personhood. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. This course introduces the interconnection of social and economic change, and the construction of identity in 19th-century America. In particular, we will attend to legal and social constructions of race, gender, and identity, and their relation to changing notions of property. Readings will include legal opinions and primary fiction and nonfiction sources. (F,SP)

145. Law and Economics I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. The course examines the intersection of social and economic analysis of law. Couses need not be taken in numerical order; no credit for prerequisite to the other. The course will apply microeconomic theory analysis to legal rules and procedures. Emphasis will be given to the economic consequences of sorts of liability rules, remedies for breach of contract and the allocation of property rights. The jurisprudential significance of the analysis will be discussed.

147. Law and Economics II. (4) Three hours of lecture and one hour of discussion per week. Law and Economics I is not a prerequisite for Law and Economics II. Students may take either or both courses. Government uses many mechanisms to influence the provision of goods and services. Economists and lawyers have developed a critique of these mechanisms which has prompted substantial reforms in recent years, e.g., deregulation in transportation. The course examines this critique.

151. Law, Self, and Society. (0) Two hours of lecture and one hour of discussion per week. Contemporary moral and political philosophy has been increasingly interested in how conceptions of the self relate to various aspects of our social and political life. These issues are of current bearing on legal theory as well. Law is shaped by certain implicit assumptions about the nature of individuals and collectivities, while it also actively participates in forming the identities of persons and in structuring collective entities, such as families, corporations, and municipalities. This course will explore some theoretical approaches to this reciprocal relationship between law and the different social actors that it governs.

154. International Human Rights. (4) Three hours of lecture and one hour of discussion per week. Contemporary international human rights are at the forefront of national and international dialogue. These discussions reflect the evolution of human rights from declaratory statements in international courts. Using historic documents, timely current articles, and a new international human rights document being drafted at Berkeley, we will learn about the recognition of human rights. Existing institutions to protect human rights, and look forward to the future of human rights. (F,SP)

155. Government and the Family. (4) Three hours of lecture and one hour of discussion per week. How has the law constructed and deconstructed “family,” relationships, and the common law theory, custom, and constitutional principles that affect the formation, regulation, and dissolution of families? How do these principles, as well as diverse cultural and social values, guide the state in determining marriage, family, and child welfare policies? (F,SP) Hollinger

157. International Relations and International Law. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. This course will evaluate and assess modern theories of international law. We will examine the work of legal scholars and look to political science and economic theory to see how these disciplines inform the study of international law. We will also examine a host of fundamental questions in international law, including, for example, why states comply with international law, and what kind of state conduct is likely to be influenced by international law. (F,SP) Guzman

160. Punishment, Culture, and Society. (4) Three hours of lecture and one hour of discussion per week. Criminal punishment in the United States: (1) forms, justifications, and relation to larger cultural and societal changes, colonial period to the present; (2) speculation about the meaning and direction of current trends. (F-SP)

161. Law in Chinese Society. (4) Three hours of lecture and one hour of discussion per week. The course examines concepts that form the basis of the Chinese legal system, traditional theories and institutions of pre-1911 society, the changes and rejection of the traditional concepts in the laws of the Nationalist period and the People’s Republic.

163. Juvenile Delinquency and Juvenile Justice. (4) Three hours of lecture and one hour of discussion per week. This course examines the premises, doctrine, and operation of juvenile courts, particularly in relation to the commission of seriously anti-social acts by mid-adolescents. Topics include: the history of theories of delinquency; the jurisprudence of the juvenile courts; the incidence and severity of delinquency; police response to juvenile offenders; the processes of juvenile courts and youth corrections; and reforms or alternatives to the juvenile court system.

166. Sex, Reproduction, and the Law. (4) Three hours of lecture and one hour of discussion per week. This course examines recent American legal and social history with respect to reproductive and sexual behavior. We will consider two theoretical aspects of the problem: first, theories of how law regulates social behavior and, second, more general theories about how reproduction is socially regulated. Armed with these theoretical perspectives, the course will then examine a variety of legal conflicts, including sterilization, abortion and contraception. (F,SP)

170. Crime and Criminal Justice. (4) Three hours of lecture and one hour of discussion per week. Introduction to the etiology of crime and criminal justice administration. What is crime? What are the main features and problems of the process by which suspected criminals are apprehended, tried, sentenced, punished? Past and current trends and policy issues will be discussed. (F,SP)

176. Twentieth-Century American Legal and Constitutional History. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Junior or senior standing. It is recommended that students have completed courses in legal studies or political science that deal with American history or American government prior to taking 176. Development of American law and the constitutional system in the 20th century. Topics include: Progressive Era Reorganization, Constitutional conflicts, freedom of speech and press, New Deal legal innovations, modern tort liability, environmental regulation, judicial reform, and federalism. (F,SP)

177. Survey of American Law and Constitutional History. (4) Three hours of lecture and one hour of discussion per week. Overview of American legal and constitutional history, from colonial times to the present. Topics include: colonial legal institutions, early constitutional history, history of the common law, business regulation, race and the law, history of the legal profession, and the modern constitutional order. (F,SP)

178. Seminar on American Legal and Constitutional History. (3) Two hours of seminar per week. Prerequisites: Consent of instructor. Enrollment is limited to this course with reading and independent research in the history of American law. Preference may be given to students who have taken 177.

179. Comparative Constitutional Law. (4) Three hours of lecture and one hour of discussion per week. An examination of constitutional decision-making in a number of countries based on selected high court opinions.

181. Psychology and the Law. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. This course will examine the implications of cognitive, social, and clinical psychology for legal theory, policies, and practices. The course will analyze the psychological assumptions, intent, motive, retribution, and morality. We will examine applications of psychology to evidence law (e.g. witness testimony, psychiatric diagnosis, and prediction), procedure (e.g. trial conduct, jury selection), and topics in criminal tort and family law. (F,SP) MacCoun

182. Law, Politics and Society. (4) Three hours of lecture and one hour of discussion per week. This course examines the theory and practice of legal institutions in performing several major functions of law: allocating authority, determining the resolving conflict, adapting to social change, and fostering social solidarity. In doing so, it will assess the nature and limits of law, as well as consider alternative perspectives on social control and social change. (F,SP)

184. Sociology of Law. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Sociology 1, 3, 3AC, or consent of instructor. Selected legal rules, principles, and institutions treated from a sociological perspective. Influence of culture and social order on law; and the role of law in social change; social aspects of the administration of justice; social knowledge and the law. (F,SP)

186. Gender, Law, and Society. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. This course examines how law affects women’s lives in legal and social contexts, and how assumptions about women and gender in the legal system help to socially construct meaning of the intersection of gender and law. (F,SP) Albiston

187. Discrimination, Law, and Inequality. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. Examination of the legal theory and the development and deployment of new legal theories and strategies to address problems of inequality based on race, national origin, sex, gender, nonconformity, and disability. Potential legal limits on transformative social norms and institutionalized practices, and effectuating intergroup equality in employment, criminal justice administration, education, and other social contexts will be considered from a variety of disciplinary perspectives. (F,SP) Kreiger

189. Feminist Jurisprudence. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Minimum sophomore standing. This course will explore the ways in which feminist theory has been used to develop a new conception of legal rights and responsibilities. It will examine a range of feminist legal theories, including equality, difference, dominance, intersectional, poststructural, postcolonial theories. It will ask how these theories have transformed legal analysis, including workplace/educational access, sexualized coercion, work/family conflict, “cultural” defenses, and globalized sweatshop labor. (F,SP) Abrams
190. Seminar on Topics in Law and Society. (1-4) Course may be repeated for credit. One to four hours of seminar per week. Prerequisites: Consent of instructor. Advanced standing in the college and with specific topics to be announced. (F,SP)

H195A-H195B. Honors in Legal Studies. (4-4) Hours to be arranged. Students may take H195A either letter-graded or In Progress. Prerequisites: Senior standing, acceptance into Honors Program in legal studies. Study of an advanced topic under the supervision of a faculty member leading to the preparation of a senior honors thesis. One or two semesters at the instructor’s option. (F,SP)

198. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curriculum” section of this catalog. One to four hours of lecture per week. Must be taken on a passed/not passed basis. Small group instruction in topics not covered by regularly scheduled courses. Topic and form of instruction may vary from year to year. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing, Consent of instructor and approval of program chairman. Enrollment restrictions apply. Consult the Legal Studies department for more information. (F,SP)

Letters and Science (College of Letters and Science)

Office: 113 Campbell Hall, (510) 642-1483
Is.berkeley.edu
Mark A. Richards, Ph.D. (Executive Dean)
Janet S. Broughton, Ph.D. (Acting Executive Dean, January-December 2009)

Divisional Deans:
Janet S. Broughton, Ph.D. (Dean, Arts and Humanities)
Mark Schilssel, Ph.D. (Dean, Biological Sciences)
Mark A. Richards, Ph.D. (Dean, Mathematical and Physical Sciences)
Deborah Nolan, Ph.D. (Acting Dean, Mathematical and Physical Sciences, January-December 2009)
Jan de Vries, Ph.D. (Interim Dean, Social Sciences)
Tyler Stowell, (Undergraduate Division)
Robert G. Jacobsen, Ph.D. (Associate Dean, Undergraduate Division)

The College of Letters and Science offers undergraduate students a variety of programs leading to the Bachelor of Arts degree in four academic years of full-time study. The first two years, are a time of exploration and experimentation, leading to declaration of a major. In the last two years, students acquire and refine special knowledge as they focus on their major programs. The college is devoted to instruction and research in a variety of academic subjects. Each department represents a style of study and communication and refined development of a set of structured ideas. The subjects of the departments overlap and complement one another.

Requirements for Admission in Advanced Standing

Students applying for admission will not be considered if they have completed more than 80 semester (120 quarter) units. The dean of the college makes exceptions to this policy only in unusual circumstances. Applicants with advanced-placement credit may, however, exceed the 80-semester-unit limitation by the amount of their advanced-placement credit and be admissible if they meet all other admission criteria.

Transfer students with 60 or more semester units are expected to have satisfied, before admission to the college, the Reading and Composition breadth requirement, the Foreign Language breadth requirement, and the Quantitative Reasoning breadth requirement of the college. Students who apply as transfers who have completed all the Letters and Science breadth requirements, or the general education requirements, or the equivalent of either, at the University of California campus from which they transfer may, upon petition, be credited with having completed the breadth requirements of the college. Transfer students who apply from community colleges in California have the option of fulfilling lower division breadth requirements by completing the Interssegmental General Education Transfer Curriculum (IGETC). This program specifies a series of subject areas and types of courses which, if completed before transfer, will satisfy the lower division breadth and general education requirements for any general campus of the University of California.

Note: In recent years, certain majors have turned away qualified applicants because of space limitations. Transfer applicants should be aware that admission to those majors in the college is competitive.

Biological Sciences Majors. Students planning to declare majors in a biological science must in addition have completed the minimum subject preparation in the major with a GPA of 2.00 (C average) or higher. The subject preparation listed below is minimal; transfer students who wish to declare a major in a biological science are urged to consult directly with the department or program in which they are interested to learn of additional requirements or of any restriction placed on entry to the major. The subject preparation for majors in the biological sciences is as follows:

Students who have completed 60 to 70 semester units:

(1) General chemistry with laboratory (equivalent to one year of Berkeley’s inorganic chemistry with laboratory).

(2) General biology with laboratory (equivalent to Berkeley’s Biology 1A-1B).

Students who have completed 71 to 80 semester units must complete in addition to points 1 and 2 above:

(3) Introductory organic chemistry with laboratory (equivalent to Berkeley’s organic chemistry with laboratory).

Requirements for the Bachelor of Arts Degree

Students must complete a minimum of 120 semes- ter units, distributed according to regulations which are published in the College of Letters and Science’s Guide to Earning Your Degree. A 15-unit class schedule per semester is considered to be a normal course load; a class list of fewer than 13 units requires the special permission of the dean. There are also scholarship, minimum-progression, residence, breadth, and major requirements; these are described in the announcement as well. Brief descriptions of the breadth, major, and minor requirements appear below. Major and minor programs are outlined under the department, field, or group headings in this publication. In addition, students must satisfy the University requirements in Entry-Level Writing, American History, and American Institutions, and the Berkeley campus American Cultures requirement.

Breadth Requirements. There are four breadth requirements:

(1) Reading and Composition. Students must nor- mally complete the first half of the requirement (an “A” course) during the freshman year and the second half of the requirement (a “B” course) during the sophomore year. Students must com- plete the requirement through coursework according to the requirements of the semester system, whether the coursework is undertaken at Berkeley or elsewhere.

(2) Quantitative Reasoning. This requirement may be fulfilled by satisfactory performance in an examination or by successful completion of an accept-
tinct from their major. The college has set the fol-
lowing minimum requirements for completion of a
minor program:
(1) Course requirements: A minimum of five upper
division courses, offered on a letter-grade basis, and
required for the minor. At least three of the five upper
division courses must be completed at Berkeley.
(2) GPA requirements: Students must maintain a
minimum overall GPA of 2.0 in upper division
courses required for the minor program.
Students should consult the department or group
in which they are interested. Admission to
the minor and certification of completion of the
minor are determined by the department or group
in charge of the program. When a student com-
pletes a minor program, the department or group in
charge will notify the Office of the Registrar, so
that the completion may be noted on the student’s
transcript.
Additional minor programs are offered by other
schools and colleges on campus. Consult their
listings in this catalog for more information.

Undergraduate Division

The mission of the Undergraduate Division is
to develop and administer innovative and interdisci-
plinary courses and programs in the College of
Letters and Science that do not belong to a single
department.

Undergraduate and Interdisciplinary Studies (UGIS)
administrates the field major in interdisci-
plinary studies and the group majors in American
studies, cognitive science, environmental sciences,
media studies, and religious studies. Minor pro-
grams are offered in creative writing, disability
studies, and religious studies. UGIS also supports
the following majors in international and area stud-
ies (101 Stephens Hall, (510) 642-4466): Asian
studies, development studies, European studies,
Latin American studies, Middle Eastern studies,
peace and conflict studies, and political economy.
In addition to our interdisciplinary majors, the
Undergraduate Division sponsors a wide range of
academic programs and services for undergradu-
ates. A world-class research university such as ours
offers something special to undergraduates who
know how to make the most of it, and the Under-
graduate Division is a good starting place for
students who seek close intellectual contact with
faculty, either in a small seminar or in a re-
search apprenticeship, for students who would like
to apply for a national scholarship, etc. Some of
the catalog-wide programs for undergraduates that
are administered by the Undergraduate Division
are described below.
The College Writing Programs (112 Wheeler
Hall, (510) 642-5570), designed to help under-
graduates establish fluency and control over their
reading and writing skills, are also part of the
Undergraduate Division.
The Freshman and Sophomore Seminars are
also housed in the Undergraduate Division. Sem-
inars are created and taught by faculty members
from across all of the campus departments. The office
posts descriptions of these special course offer-
ing to freshmen in time for Tele-BEARS regis-
tration each semester. For more information,
please contact Alix Schwartz in 333 Campbell Hall;
(510) 642-8378; or go to fss.berkeley.edu.
The UC Berkeley Washington Program, also
administered by UGIS, allows undergraduates to
spend a semester in Washington, D.C., combining
coursework with internships.
The Office of Undergraduate Research (OUR)
seeks to involve undergraduates more deeply
in the research life of the University. To this end,

OUR coordinates and develops programs and
resources that bring undergraduates into the field,
laboratories, and archives. This office administers
the Undergraduate Research Apprentice-ship
Program, the Haas Scholars Program, and the
Beckman Scholars Program, and maintains a cen-
tral research opportunities web site at research.
berkeley.edu.

The Scholarship Connection coordinates appli-
cations for scholarships and awards based on aca-
ademic achievement and social or political con-
tribution. Campus committees for the Rhodes, Mar-
shall, Truman, and several other distinguished
scholarships that are housed here. Students con-
sider the opportunity to advise and assist them in
the application process.

Organizational Units

African American Studies
American Studies
Ancient History and Mediterranean Archaeology
Anthropology
Art
Practice of Art
History of Art
Asian American Studies
Asian Art
Astronomy
Biostatistics
Buddhist Studies
Celtic Studies
Chemistry
Chicana Studies
Classics
Cognitive Science
College Writing Programs
Comparative Literature
Computer Science
Demography
Development Studies
Dutch Studies
Earth and Planetary Science
East Asian Languages and Cultures
East European Studies
Economics
Law and Economics
English
Environmental Sciences
Ethnic Studies
Ethnic Studies Graduate Group
Film
Folklore
French
Gender and Women's Studies
Geography
German
History
Integrative Biology
Interdisciplinary Studies
Italian Studies
Latin American Studies
Legal Studies
Linguistics
Logic and the Methodology of Science
Mathematics
Media Studies
Medieval Studies
Middle Eastern Studies
Molecular and Cell Biology
Music
Native American Studies
Near Eastern Studies
Peace and Conflict Studies
Philosophy
Physical Science
Physics
Political Economy
Political Science
Population Studies
Psychology
Religious Studies
Rhetoric
Scandinavian
Science and Mathematics Education
Slavic Languages and Literatures
Social Welfare
Sociology
South and Southeast Asian Studies
Spanish and Portuguese
Statistics
Theater, Dance, and Performance Studies
Theater and Performance Studies
Dance and Performance Studies
Undergraduate and Interdisciplinary Studies
Lower Division Courses
1. Exploring the Liberal Arts, (2) One and one-half
hours of lecture and one hour of discussion per week.
Must be taken on a passed/not passed basis. This is a
course for entering students, particularly those who
are undecided about the major they would like to
pursue. It provides an introduction to the intellectual
landscape of the College of Letters and Science,
revealing the underlying assumptions, goals, and
structure of a liberal arts education. Topics include
the difference between the College of Letters and
Science and the professional schools, the rationale
behind the breadth requirement, the approaches and
methodologies of each of the divisions in the college,
and the benefits of engaging in research as an under-
graduate. The ultimate goal of the course is to trans-
form the students into informed participants in their
own educational experiences, so that they can make
the most of their years at Berkeley.

2. UC Berkeley Washington Program

3. Speech and Writing. (4) Three to four hours of
lecture and one hour of discussion per week. This is
a course for entering students, particularly those who
are undecided about the major they would like to
pursue. It provides an introduction to the intellectual
landscape of the College of Letters and Science,
revealing the underlying assumptions, goals, and
structure of a liberal arts education. Topics include
the difference between the College of Letters and
Science and the professional schools, the rationale
behind the breadth requirement, the approaches and
methodologies of each of the divisions in the college,
and the benefits of engaging in research as an under-
graduate. The ultimate goal of the course is to trans-
form the students into informed participants in their
own educational experiences, so that they can make
the most of their years at Berkeley.

5. Introduction to Entrepreneurship, (1) One hour
of lecture per week. Must be taken on a passed/not
passed basis. This course is designed for freshmen
and sophomores who wish to know about entrepre-
neurship, its importance to our society, and its role
in bringing new ideas to market. Students will under-
stand the entrepreneurial business process and how
they might become involved in those processes in
their future careers—in whatever direction those
careers might lead. The class will explore the struc-
ture and framework of entrepreneurial endeavors—both
inside and outside the business world. The course
will answer questions such as: What is entrepreneur-
sip? Why is it opportunity recognition and selection?
How can you create and define competitive advan-
tage? How can you think about people in the entre-
preneurial context? How can you garner support (finan-
cial and other) for an entrepreneurial venture?
What do you do when nothing works as planned?
And, how do you focus on doing right and doing well?
(F) Majalela

17. Literature and Culture of the Nordic World, (4)
Students will receive 2 units of credit for 17 after taking
SNSCI 178. Three hours of lecture and one hour of
discussion per week. College courses are designed
to embody the mission of the College of Letters and
Science by fostering and supporting the ideals of a
liberal arts education at the highest level of excel-
ence. This course, whose full title is Northern Light,
Northern Darkness: Literature and Culture of the
Nordic World, will introduce the culture of the Scandi-
vanian countries (Sweden, Norway, Denmark, and Iceland),
focusing on selected historical moments and major
figures. Lectures will cover cultural, political, and social
issues. Course materials include sagas, fairytales,
novels, and films. All readings in English. (F,SP)
Sanders

20. Arts and Literature. Three to four hours of
lecture and one hour of discussion per week. This course
features significant engagement with arts, literature
or language, either through critical study of works of art
or through the creation of art. Art enables us to see
the familiar world with new, often questioning eyes, and
makes distant times and places, characters, and
issues come alive in our imagination, which is essen-
tial to almost all intellectual endeavor. The Arts and Lit-
erature breadth requirement is intended to provide
students with knowledge and appreciation of the cre-
ative arts so that, for the duration of their lives, en-
gagement with art can be, variously, a wellspring of
creativity, a lodestar for critical perspectives, and
a touchstone of aesthetic quality—in sum, a continuing
source of learning and serious pleasure. (F,SP)
C307. Drugs and the Brain, (3) Students will receive
no credit for C307 after taking Molecular and Cell

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R44. Western Civilization. (5) Three to four hours of lecture and two hours of discussion per week. Prerequisites: Completion of UC Entry-Level Writing Requirement. Required of all students taking Thucydides and Classical Greece, Rome in its transition from republic to empire, and the world of the Old Testament. The course will meet in small groups for discussion. Lectures and discussions will involve interdisciplinary approaches with an emphasis on the development of skill in writing. Satisfies either half of the Reading and Composition requirement. (F) Staff

60. Philosophy and Values. Three to four hours of lecture and one hour of discussion per week. According to Aristotle, every exercise of our faculties has some good for its aim. Every discipline taught in the College of Letters and Science has ethical implications, and philosophers of both modern and ancient times have been encouraged to ponder the types of questions that will enhance their abilities to understand the heritage, their contemporaries, and themselves. (F.SP)

70. Physical Science. Two to four hours of lecture and one hour of discussion per hour. Physical scientists seek to understand the Universe, from its microscopic substructure to its largest structures, from our own earth to the edge of the Universe and the beginning of time. Students fulfilling Physical Science breadth in the College of Letters and Science may be motivated by the pure pleasure of penetrating the mysteries of the Universe, or by more practical con considerations, such as a desire to take an intelligent stance on such topics as greenhouse gases and space exploration. Whether students opt for the practical or the theoretical or a combination of both, students choosing a lower-division course in this series will learn to formulate problems clearly and think quantitatively, critically, and abstractly. (F.SP)

C70X. Big History—Cosmos, Earth, Life, and Humanity. (4) Three hours of lecture and one hour of discussion per week. Must be taken on a pass/no pass basis. Prerequisites: Sophomore standing, except for freshmen who have previously taken S0. This course explores all four major regimes of history—cosmic history, Earth history, life history, and human history. Bringing together these normally unrelated topics, it seeks to understand the character of history by examining long-term and intercalculated chance events, by looking for common causes underlying historical change in all four regimes, and by identifying the novelties that have made each regime unique. It offers a broad perspective for students interested in any of the historical disciplines, helping them cross the barriers between fields of historical study. Also listed as Earth and Planetary Science C21. (SP) Alvarez

C707. Earthquakes in Your Backyard. (3) Two hours of lecture per week and one or more field trips. Introduction to earthquakes, their causes and effects. General discussion of basic principles and methods of seismology and geological tectonics, distribution of plate boundaries, and earthquake hazard and risk, with particular emphasis on the situation in California. Also listed as Earth and Planetary Science C20. (F)

80. Social and Behavioral Sciences. Three to four hours of lecture and one hour of discussion per week. Each lower division course in the Social and Behavioral Sciences series deals primarily with the human events, institutions and activities of the past. Historical studies are particularly important because, to paraphrase the philosopher George Santayana, those who cannot remember the past are doomed to repeat its mistakes. The study of history provides us with perspective on the human condition and with an appreciation of the origins and evolution of the numerous cultures and social orders that have populated the earth. Whether students study history to understand how the world evolved from the past or to focus on the distinctions between the present and previous eras, they will come away with a richer understanding of and appreciation for human experience. (F.SP)

40AC. California and the World. (4) This course centers on California and its particular relationship to global forces and events. From its inclusion in a global empire (Spain) to the international ripple effects of the Gold Rush, and from the enormous impact of World War II to the complex repercussions of the high tech boom, California holds a unique place in the process of globalization. Taking this perspective, the course will examine one of the most vital aspects of this stage of historical development, taking into consideration the importance of flows of people (e.g., migration and immigration), culture (e.g., media representation), technology (e.g., electricity, and resources (e.g., agricultural production). Throughout, the course will be framed to take into account issues of race, ethnicity, gender, and class as well as space/place. This course satisfies the American Cultures requirement. (F.SP) Saragoza

70U. Introduction to General Astronomy. (4) Students will receive no credit for C70U after taking Astronomy 7A or 7B or 10U; students can remove a deficient grade in C70U by taking Astronomy 10. Three hours of lecture and one hour of discussion per week. This course will provide an emphasis on the structure and evolution of stars, galaxies, and the Universe. Additional topics optionally discussed include quasars, pulsars, black holes, and extraterrestrial communication, etc. Individual instructor's synopses available from the department. Also listed as Astronomy C12 and Earth and Planetary Science C12. (F.SP)

70V. Physics and Music. (2) Two hours of lecture and one hour of discussion per week. Prerequisites: Open to students with or without high school physics. What can we learn about the nature of reality and the ways that we humans have invented to discover how the world works? An exploration through the physical principles encountered in the study of music. The applicable laws of mechanics, fundamentals of sound, harmonic content, principles of sound production in musical instruments, musical scales. Numerous illustrative lecture demonstrations will be given. Only the basics of high school algebra and geometry will be used. Also listed as Physics C21. (SP) Presti

340 / Letters and Science
The undergraduate major in linguistics introduces students to the tools and techniques of research into the structure, functions, and histories of languages. Since the study of language draws from and contributes to many other fields of study, students choosing the linguistics major are strongly urged to become more than superficially acquainted with some related but independent field: anthropology, cognitive science, computer science, literature, mathematics, philosophy, psychology, or the sciences.

Prerequisites: Linguistics 100 with a minimum grade of C.

Requirements (Upper Division): The major consists of a four-course core (Linguistics 110, 115, 120, and 130) which includes phonetics and phonology, morphology, syntax and semantics, and language history.

Three or four other courses totalling a minimum of 10 additional upper division units are added to the core through consultations between students and major advisers to complete the major’s minimum degree requirement. Of these units, five may be selected from upper division and graduate-level offerings within the Department of Linguistics. The remaining five upper division units may be courses from outside the department, but must be strongly related to linguistics. A list of pre-approved courses can be found on the Department of Linguistics web site. Courses not on the pre-approved list require the prior written consent of an undergraduate adviser and must be approved in fulfillment of Department of Linguistics requirements.

Because the major varies greatly from student to student, each student is encouraged to plan a program of study with an undergraduate adviser and to see the adviser on a regular basis (at least once a semester).
The Minor

Many students not majoring in linguistics find it useful to take several courses in linguistics during their undergraduate careers to complement their major work in another area. Graduating with a minor in linguistics gives students official recognition for having completed a linguistics sub specialization.

Prerequisites. Linguistics 100 with minimum grade of C.

Requirements. (Upper Division): Four courses in linguistics. Two of the four must be from the core list: Linguistics 110, 115, 120, 190. The third must be taken in the department and may but need not be on the core list. The fourth may be taken outside the department as long as it is on a list of pre-approved linguistics electives.

Graduate Programs

The Department of Linguistics has strengths in many areas: phonetics, phonology, morphology, syntax, semantics, pragmatics, sociolinguistics, field linguistics, historical linguistics, and cognitive linguistics are all well represented by the faculty’s interests. The department emphasizes research that seeks to discover and provide explanations for general properties of linguistic form, meaning, and usage. The department is also committed to linguistics in the service of endangered languages.

Preparation for Graduate Study in Linguistics. Graduate students in linguistics should have had an undergraduate major in linguistics, or some equivalent training in the minor department. They should be prepared to pass the required foreign language reading examinations early in their graduate career.

Master’s Degree in Linguistics. Students may follow either Plan I or Plan II for the master’s degree. Plan I requires 25 units plus a thesis. (No course units are granted for the thesis itself.) Plan II requires 30 units. Both plans include at their culmination, normally at the end of the second year, a two-hour comprehensive oral examination. Required courses for the linguistics M.A. are 110, 200, 211A, 220A, 230, four course from the set [105, 123, 181, 191, 250A, 250B, 250C, 250D, 250E], one course from the set [210, 211B, 215], and one course from the set [205, 220B]. Students are encouraged to supplement the core courses with a coherent battery of courses in a particular language or language family, in general linguistics, or in some allied field such as cognitive science or anthropology. These supplemental courses are to be chosen in consultation with the student’s adviser.

Doctoral Degree in Linguistics. The doctoral program requires an M.A. in linguistics from Berkeley, and follows the requirements described in the “Graduate Education” section of this catalog with some augmentations. For information on the further requirements, go to the department web site at linguistics.berkeley.edu.

Linguistic Society of America Summer Institute. In the U.S. the principal scholarly organization representing the field of linguistics is the Linguistic Society of America (1355 18th Street N.W. Suite 211, Washington, D.C. 20036-6501; (202) 835-1714; lsacl.org). The organization sponsors a six-week summer institute in linguistics every other year, in collaboration with some co-sponsoring universities. Both graduate and undergraduate-level students are strongly encouraged to take part in these programs, which—through a wide range of courses, seminars, conferences, workshops, lecture series, and talks—provide exposure to developments in the field and areas of interest that no single university can offer.

Lower Division Courses

C1A. Elementary Swahili. (4) Students will receive no credit for C1A after taking C1B. Four hours of recitation and one hour of laboratory per week. This course introduces students to the basics of speaking, listening, reading, and writing in Swahili. Instruction is mixed English and Swahili. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Swahili. Also listed as African American Studies C11A. (F) Mchombo

C1B. Elementary Swahili. (4) Students will receive no credit for C1B after taking C1B. Four hours of recitation and one hour of laboratory per week. Prerequisites: C1A. This course introduces students to the basics of speaking, listening, reading, and writing in Swahili. Instruction is mixed English and Swahili. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Swahili. Also listed as African American Studies C11A. (F) Mchombo

C2A. Intermediate Language Tutorial. (3) Course may be repeated for credit. Hours to be arranged. Prerequisites: Requires special permission. Apply to Center for African Studies. Specially designed tutorials for individuals or small groups needing instruction in languages not normally offered on the Berkeley campus. (F)

C3A. Elementary Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course introduces students to speaking, listening, reading, and writing in Zulu. Emphasis is placed on developing student ability to create and to communicate with basic Zulu structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Zulu. Also listed as African American Studies C13A. (F) Sibanda

C3B. Elementary Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course introduces students to speaking, listening, reading, and writing in Zulu. Emphasis is placed on developing student ability to create and to communicate with basic Zulu structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Zulu. Also listed as African American Studies C13B. (SP) Sibanda

C4A. Intermediate Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Elementary Zulu. Oral and written communication is emphasized. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through composition, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by instructor’s materials. Also listed as African American Studies C14A. (F) Sibanda

C4B. Intermediate Wolof. (4) Four hours of lecture and one hour of laboratory per week. Prerequisites: C4A. This course reviews and expands students’ knowledge of fundamental structures from Elementary Zulu. Oral and written communication is emphasized. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through composition, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by instructor’s materials. Also listed as African American Studies C14B. (F) Sow

C7A. Elementary Wolof. (4) Four hours of recitation and one hour of laboratory per week. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from the Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as African American Studies C7A. (F) Sow

C7B. Elementary Wolof. (4) Four hours of recitation and one hour of laboratory per week. Prerequisites: C7A. This course introduces students to speaking, listening, reading, and writing in Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from the Berkeley Language Center. Writing and reading are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof. Also listed as African American Studies C7B. (SP) Sow

C8A. Intermediate Wolof. (4) Four hours of recitation and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Elementary Wolof and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, written exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through composition, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by instructor’s materials. Also listed as African American Studies C8A. (F) Sow

C8B. Intermediate Wolof. (4) Four hours of recitation and one hour of laboratory per week. Prerequisites: C8A. This course reviews and expands students’ knowledge of fundamental structures from Elementary Wolof and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, written exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through composition, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by instructor’s materials. Also listed as African American Studies C8B. (F) Sow

5. Language and Linguistics. (4) Three hours of lecture and one hour of discussion per week. A general survey of the field of linguistics. Students are introduced to a wide range of data from diverse languages and to basic principles of linguistics. (4) SP
appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo


C19A. Advanced Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge from Intermediate Zulu. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo

C19B. Advanced Zulu. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge from Intermediate Zulu. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo

C19C. Advanced Wolof. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge from Intermediate Wolof. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo

C19D. Advanced Wolof. (4) Four hours of lecture and one hour of laboratory per week. Prerequisites: C19A. This course reviews and expands students’ knowledge from Intermediate Wolof. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo

C20A. Intermediate Chichewa. (4) Students will receive no credit for C20A after taking 10B. Four hours of recitation and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Elementary Swahili and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo

C20B. Intermediate Chichewa. (4) Students will receive no credit for C20B after taking 10B. Four hours of recitation and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Elementary Swahili and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C15A. (F) Mchombo

C20C. Intermediate Chichewa. (4) Students will receive no credit for C20C after taking 10A. Four hours of recitation and one hour of laboratory per week. This course reviews and expands students’ knowledge from Intermediate Chichewa. Emphasis is placed on developing student ability to create and to communicate with basic Chichewa structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. This course is not open to native or heritage speakers of Chichewa. (SP) Mchombo

C31A. Intermediate Chichewa. (4) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge of fundamental structures from Intermediate Chichewa and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C31A. (F) Mchombo

C31B. Intermediate Chichewa. (4) Four hours of lecture and one hour of laboratory per week. Prerequisites: C31A. This course reviews and expands students’ knowledge of fundamental structures from Elementary Chichewa and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. Also listed as African American Studies C31A. (F) Mchombo

C32A. Elementary Swahili. (3) Four hours of lecture and one hour of laboratory per week. Begins with the Arabic alphabet, the Arabic and English shift, loss, retention, and renewal. Languages include English (standard and nonstandard; Black English), pidgins and creoles, Native American languages, Spanish, French, and immigrant languages from Asia and Europe. This course satisfies the American Cultures requirement. (SP)

C343. First-Year English. (3) Four hours of lecture and one hour of laboratory per week. This course reviews and expands students’ knowledge of basic Chichewa structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects with texts available through Berkeley’s African Library Collection and supplemented by the instructor’s materials. This course is not open to native or heritage speakers of Chichewa. (SP) Mchombo

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 Prefixes

B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix/course satisfies R&C requirement
AC suffix/course satisfies American Cultures requirement

*Professor of the Graduate School
Recipient of Distinguished Teaching Award

B prefix=language course for business majors
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R prefix/course satisfies R&C requirement
AC suffix/course satisfies American Cultures requirement

*Professor of the Graduate School
Recipient of Distinguished Teaching Award
How are language and thought related to perceptions of language and learning phenomena. Also listed are questions: (1) How is it possible for the human brain, through the architecture and mechanisms, using models and simulations, to perceive the world and reason about it? The purpose of the course is to provide students interested in political and social issues with the tools to analyze the framing of, and logic behind, contemporary political discourse. Also listed as Cognitive Science C104.

C105. The Mind and Language. (4) Three hours of lecture and one hour of discussion per week. Formerly 105. Conceptual systems and language from the perspective of cognitive science. How language cognerces insight into conceptual structure, reasoning, category-formation, metaphorical understanding, and the framing of experience. Cognitive versus formal logic, implications for art, music, architecture, and literature, artificial intelligence, and politics. Also listed as Cognitive Science C101. (SP) G. Lakoff, E. Sweetser

106. Metaphor. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Lower division students must have instructor approval. The role of metaphor in human thought and language, in conceptual systems, and in world views. Topics include cross-cultural differences, literary metaphor, sound symbolism, and related theoretical issues in philosophy, linguistics, psychology and anthropology. G. Lakoff, Sweetser

C108. The Challenge of Cognitive Science to Western Philosophy. (4) Three hours of lecture/discussion per week. Prerequisites: Some background in either cognitive science or philosophy. Three major results of cognitive science are inconsistent with most of Western philosophy: the embodiment of mind, the cognitive unconscious, and metaphorical thought. The course rethinks philosophy from a cognitive science perspective, focusing on the role of metaphor and the body in construing language and thought.

C109. The Neural Basis of Thought and Language. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Computer Science C61B; and Cognitive Science C101, C105 or Cognitive Science C100, Psychology C120B; or consent of instructor. This is a course on the current status of interdisciplinary studies that seeks to answer the following questions: (1) How is it possible for the human brain, which is a highly structured network of neurons, to think and to learn, use, and understand language? (2) How are language and thought related to perception, motor control, and our other neural systems, including social cognition? (3) How do the computational properties of neural systems and the specific neural structures of the human brain shape the nature of thought and language? Much of the course will focus on the Neural Theory of Language (NTL), which seeks to answer these questions in terms of architecture and mechanism, using models and simulations of language and neural phenomena. Also listed as Cognitive Science C110 and Computer Science C182. (SP)

110. Introduction to Phonetics and Phonology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100 or concurrent enrollment or graduate status. Description, transcription, and analysis of human speech sounds in their physiological and acoustic aspects, especially as this aids our understanding of sound change and the psychological mechanisms serving speech.

113. Experimental Phonetics. (3) Three hours of lecture per week. Prerequisites: 110. Practical training in experimental phonetics: acoustic, physiological, and perceptual analysis of speech.

115. Phonology and Morphology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100. Introduction to important cross-linguistic phenomena and morphological phenomena, as well as standard methods of description and analysis. (SP)

120. Introduction to Syntax and Semantics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100. An introduction to the study of the structural properties of sentences and the connections between sentence structure and sentence meaning. (SP)

122. Language Typology and Linguistic Universals. (3) Three hours of lecture per week. Prerequisites: 100. Issues in language typology and linguistic universals. An examination of various linguistic sub-systems in different languages. Topics will include interrogatives, pronoun systems, relative clause formation, case systems, etc.

123. Pragmatics. (3) Three hours of lecture per week. Prerequisites: 100. The relation between language and social interaction. Some topics to be emphasized are conversational logic, speech act theory, politeness, social role, psychological perception of oneself and language, and variation in language use. R. Lakoff

124. Discourse. (3) Three hours of lecture per week. Prerequisites: 100. Language beyond the sentence. Global and local properties of connected speech and writing. Narrative structures, new and old information, subjects and topics, foregrounding and backgrounding.

127. Cross-Cultural Verbal Art. (3) Three hours of lecture per week. This course examines parallels and differences between language art in different cultures, both at the level of form (linguistic parallelism, rhyme, alliteration) and meaning (how is metaphor used? what rhetorical patterns are artifcetic?). This course is intended to help students develop a sense of what artistic language is, crossculturally, and to let them examine a chosen poetic tradition in detail for their project. The course readings and the theoretical models will be drawn equally from anthropology and linguistics.

130. Comparative and Historical Linguistics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Some background in either cognitive science or philosophy. Some topics to be emphasized are language universals, types and explanations of language change, dialectology, the establishment of language relationships and subgroupings. (F)

131. Indo-European Comparative Linguistics. (3) Three hours of lecture per week. Prerequisites: 130. The affinities of the Indo-European languages and the reconstruction of their common ancestor.

139. Language Spread. (3) Three hours of lecture per week. Prerequisites: Upper division status or consent of instructor. Linguistic background and the general principles of language spread. Mechanisms of language spread, such as translation-decategorization, language planning, and the role of bilingualism. Case studies in language spread, including Austronesian, Indo-European, Amerindian, Uralic, African, Sinitic, and Australian languages. Relationship of language spread to immigration and culture spread. Also listed as Slavic Languages and Literatures C139.

Nichols, Rhodes

140. Introduction to Field Methods. (3) Three hours of lecture per week. Prerequisites: 110 and 115. Training in the field methods and techniques of a particular language. Methods and practice in collecting and processing data from a particular language.

147. Language Disorders. (3) Three hours of lecture/discussion per week. Prerequisites: 100. An introduction to experimental and theoretical research on language disorders, particularly acquired aphasia in adults. Major course themes include the relationship between normal and pathological language, and the usefulness of linguistic analysis for empirical research. Topics include phonetic, phonological, morphological, semantic, syntactic, and pragmatic aspects of language disorders in monolingual speakers of typologically diverse languages. Also listed as Cognitive Science C147. (F,SP) Gahl

150. Sociolinguistics. (3) Three hours of lecture per week. Prerequisites: 100. The principles and methods of sociolinguistics. Topics to be covered include linguistic pragmatics, variation, class, and regional dialectology, and oral styles.

151. Language and Gender. (3) Three hours of lecture per week. An overview of research over the past 30 years on the relationship between language and gender: how women’s use of language differs from men’s, in U.S. and other cultures; how men and women are spoken of differently; how women and men have different amounts of access to power via public discourse; gender differences in nondominant groups (e.g., lesbians and gays; African Americans); the role of stereotyping in linguistic differences between the sexes; role of gender in discourse genres. R. Lakoff

154A. Native America Meets the Europeans. (4) Three hours of lecture and one hour of discussion per week. A critical examination of major social issues surrounding historical and contemporary contact among indigenous peoples of and newcomers to present-day United States. The course will address the conflicts and results associated with contact, especially political incorporation; assimilation and resistance; and linguistic outcomes, such as language shift, new language varieties, and language reclamation. Special attention will be paid to the role of linguistics with respect to these issues. This course satisfies the American Cultures requirement. (F,SP) Rhodes

C160. Quantitative Methods in Linguistics. (3) Three hours of lecture per week. Prerequisites: 100 or graduate student standing. The goals of the course are a deepened understanding of linguistic research using quantitative analysis, and an ability to use such analyses in original research. A related goal of the course is to serve as an introduction to a powerfull— and free— software package (called “R”) for statistical analysis and data visualization. This will be an intensive course in statistical analysis and data visualization. The statistical techniques covered include t-tests, chi-square tests, multiple linear regression, logistic regression, and mixed-effects (linear and logistic) regression. No prior experience with statistical analysis is required, but students will know the logic behind a wide range of statistical techniques and the practical skills required to carry out statistical analyses. Also listed as Cognitive Science C140. (SP) Gahl

170. History, Structure, and Sociolinguistics of a Particular Language. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100 or graduate student standing. The goals of the course are a deepened understanding of linguistic research using quantitative analysis, and an ability to use such analyses in original research. A related goal of the course is to serve as an introduction to a powerful— and free— software package (called “R”) for statistical analysis and data visualization. This will be an intensive course in statistical analysis and data visualization. The statistical techniques covered include t-tests, chi-square tests, multiple linear regression, logistic regression, and mixed-effects (linear and logistic) regression. No prior experience with statistical analysis is required, but students will know the logic behind a wide range of statistical techniques and the practical skills required to carry out statistical analyses. Also listed as Cognitive Science C140. (SP) Gahl

181. Lexical Semantics. (3) Three hours of lecture per week. Prerequisites: 120. Lectures and exercises in the description of word meanings, the organization of lexical systems, the lexicalization of particular semantic domains (kinship, color, etc.), and contrastive lexicology. Special attention will be paid to the role of semantics and the encyclopedia of typology differences across languages.

H195A-H195B. Linguistics Honors Course. (2-4) Three hours of work per unit per week. Hours to be arranged. Credit and grade to be awarded on completion of sequence. Prerequisites: 3.5 GPA or higher.
overall and in the major. A two-semester course consisting of independent study of an advanced topic, supervised by a faculty member, and culminating with a final report. This thesis will be evaluated by a faculty honors committee. Thesis is due on the Monday of the 13th week of the second semester, and honors students will be invited to present their research at an Undergraduate Colloquium. (F,SP)

198. Directed Group Study and Research. (1-4) Consent may be requested for credit. Hours to be arranged. Sections 1-4 to be graded on a passed/not passed basis. Section 5 to be graded on a letter-grade basis. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. (F,SP)

Graduate Courses

200. Graduate Proseminar in Linguistics. (1) Two hours of seminar per week. Required of graduate students during first year in program. An introduction to linguistics as a profession, its history, subfields, and methodologies. (F)

201. Advanced Graduate Proseminar in Linguistics. (2) Course must be taken at the beginning of graduate student’s third year. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly 200. (Mathematical theory, Greek and Latin linguistic theory, Speculative Grammar, the revival of classical scholasticism, Sanskrit, the Port Royal grammars, Jones, Palлас, Gyarmathy, and 19th-century comparative and historical linguistics.)

204A. Field Methods I. (4) Course may be repeated for credit. Four hours of session per week. Credit and grade to be awarded on completion of sequence. Prerequisites: 211A and 220A, or equivalent. Training in elicitation and analysis of linguistic data in a simulated field setting. The same language is used throughout the year. (F)

204B. Field Methods II. (4) Four hours of session per week. Credit and grade to be awarded on completion of sequence. Prerequisites: 240A. Training in advanced training in current theories and methodologies in sociolinguistics. The course covers Variation; Language Contact; Language and Gender; Conversation/ Discourse in Endangered Languages; represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper. (F,SP) Hinton, R. Lakoff

250. Sociolinguistic Analysis. Three hours of lecture per week. The course covers Variation; Language Contact; Language and Gender; Conversation/ Discourse, Endangered Languages represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper. (F,SP) Hinton, R. Lakoff

270. Structure of a Particular Language. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 211A and 220A. An analysis of the language structure of a particular language. The language investigated changes from year to year. (F)

275. Survey of American Indian Languages. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 211A and 220A. An analysis of the language structure of a particular language. The language investigated changes from year to year. (F)

290. Topics in Linguistic Theory. (1) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: 240A. Seminar takes a close look at research in cognitive linguistics by 300 students, and the class as a whole reads background articles and books that place the target articles into their context. (F)

290A. Syntax and Semantics I. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 220A. This course aims at developing a solid conceptual, analytical, and empirical foundation for doing research in syntax and semantics. The emphasis is on gaining familiarity with the central empirical phenomena, as well as core theoretical notions, methodology, and argumentation. (F) Mikkelson, Nichols

290B. Syntax and Semantics II. (3) Three hours of lecture per week. Prerequisites: 220A. This course continues 220A with an in-depth examination of syntactic and semantic phenomena in natural languages and the methods of their analysis. (SP)

290C. Advanced Semantics. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. The emphasis is on gaining familiarity with the central empirical phenomena, as well as core theoretical notions, methodology, and argumentation. (F) Mikkelson, Nichols

290D. Pragmatics. (3)

290E. Phonology. (3)

290F. Diachronic Linguistics. (3)

290L. Additional Seminar on Special Topics to Be Announced. (3) Course may be repeated for credit. Hours to be arranged. Prerequisites: Consent of instructor. Seminar or special lecture courses on linguistic topics.

Professional Courses

301. Teaching Practice and Instruction. (2,4) Hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 110, 120 and 130 consent of instructor. Teaching methods “clinic” for first-time Linguistics GSI’s. Sessions will deal with the presentation of linguistic concepts in each of the foundation courses, the creation of homework assignments and examinations, policies and practices regarding correction of students’ work, grading, and feedback. (F,SP)

Logic and the Methodology of Science

(College of Letters and Science)

Group Office: 910 Evans Hall, (510) 642-0665 logic.berkeley.edu

Professors

Robert M. Anderson, Ph.D. Nonstandard analysis (Economics)

Brandon Fehrton, Ph.D. Philosophy of science, logic, automated reasoning (Philosophy)

Lee A. Harrington, Ph.D. Recursion theory, model theory, set theory (Mathematics)

John MacFarlane, Ph.D. Philosophy of Logic, philosophy of language and ancient philosophy (Philosophy)

Pablo Macianco, Ph.D. Logic, philosophy of mathematics (Philosophy)

Hans Sluga, B.Phil., Ph.D. History of logic, philosophy of mathematics (Philosophy)

John Steel, Ph.D. Set theory, descriptive set theory (Mathematics)

Sherrylin Roush, Ph.D. Philosophy of science, epistemology, probability (Philosophy)

Thomas Scanlon, Ph.D. Model theory and diophantine geometry (Mathematics)

Jack H. Silver, Ph.D. Set theory, model theory (Mathematics)

Theodore A. Slaman, Ph.D. Recursion theory (Mathematics)

Mark Wilson, Ph.D. History of logic, philosophy of mathematics (Philosophy)

Umesh V. Vaidyanathan, Ph.D. Complexity theory, cryptography (Computer Science)

W. Hugh Woodin, Ph.D. Large cardinals, determinacy and inner models (Mathematics)

Ernest W. Adams (Philosophy Emeritus), Ph.D.

John W. Addison Jr. (Mathematics Emeritus), Ph.D.

David Blackwell (Statistics, Mathematics Emeritus), Ph.D.

Michael Blum (Electrical Engineering and Computer Sciences Emeritus), Ph.D.
Manufacturing Engineering
(College of Engineering)

Office: 4135 Etchevery Hall (Industrial Engineering and Operations Research), (510) 642-7983
Website: www.eecs.berkeley.edu/department/industrial-engineering

Program Overview
Manufacturing Engineering is an interdisciplinary undergraduate program offered jointly by the Department of Industrial Engineering and Operations Research and the Department of Mechanical Engineering. The emphasis of the program is on how to manufacture products and services in a cost-effective way. The program demands creativity and the ability to solve problems and communicate effectively. Course topics include computer-aided manufacturing, robotics, and automated production systems, high mixture volume manufacturing, systems design and synthesis, reliability, optimization, and manufacturing processes. These fundamentals are applied to a variety of manufacturing industries, including integrated circuit, automobile, steel, and electronics.

Curriculum and Requirements for the Bachelor's Degree
Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in this catalog. In addition, students must complete the requirements for the College of Engineering and the manufacturing engineering program. Further details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement.

Material Science and Engineering
(College of Engineering)

Department Office: 210 Hearst Memorial Mining Building #1760, (510) 642-3801
mse.berkeley.edu
Chair: Robert D. Ritchie, Sc.D.

Professors
A. Paul Alivisatos, Ph.D. University of California, Berkeley. Nanoscience
Jillian F. Banfield, Ph.D. Johns Hopkins University. Nanoscale science
Robert J. Birgenheier, Ph.D. Yale University. Materials physics
George H. Brimhall Jr., Ph.D. University of California, Berkeley. Economic geology
Daryl Chorzan, Ph.D. University of California, Berkeley. Computational materials science
Lutfard De Jonghe, Ph.D. University of California, Berkeley. Ceramic properties and engineering
Thomas M. Devine Jr., Ph.D. Massachusetts Institute of Technology. Ceramic processing
Fiona M. Doyle (The Donald H. McLaughlin Professor of Mineral Engineering), Ph.D. Imperial College, University of London. Solution processing
Andreas Gliasser, Sc.D. Massachusetts Institute of Technology. Microstructure development, ceramic joining
Ronald Gonsly (The Arthur C. and Phyllis G. Oppenhimer Professor in Advanced Materials Analysis), Ph.D. University of California, Berkeley. Materials characterization
Eugene E. Haller (The Liang-Chao Endowed Professor in Materials Science and Engineering), Ph.D. University of California, Berkeley. Materials characterization
Kevin E. Healy, Ph.D. University of Pennsylvania. Biomaterials and tissue engineering
Frances Hellman, Ph.D. Stanford University. Applied physics
Arun Majumdar, Ph.D. University of California, Berkeley. Nanoscience
J.W. Morris Jr., Sc.D. Massachusetts Institute of Technology. Technology, chemical metallurgy, phase transformations

Overview
The Department of Materials Science and Engineering (MSE) administers undergraduate and graduate programs in materials science and engineering. In addition, undergraduate students may be admitted to one of five joint-major programs. Materials Science and Engineering encompasses natural and man-made materials—their extraction, synthesis, processing, properties, characterization, and development, and for technological uses. Advanced engineering activities that depend upon optimized materials include medical device and healthcare industries, electronics and photonics, transportation, advanced batteries and fuel cells, and the emerging field of nanotechnology. Students in materials science and engineering apply a basic foundation of mathematics, chemistry, physics, and engineering to fields of specialization that include biomaterials; electronic, magnetic, and optical materials; materials for energy technologies; structural materials; chemical and electrochemical materials science and engineering; and computational materials science and engineering. Nanoscale science and engineering plays an important role in all of these specializations.

See the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study at coe.berkeley.edu/college-of-engineering-announcement for more information.

Biomaterials. Traditionally, biomaterials encompass synthetic alternatives to the native materials found in the human body. A central limitation in the performance of traditional materials used in the medical device, biotechnological, and pharmaceutical industries is that they lack the ability to integrate with biological systems through either a molecular or cellular pathway, which has relegated biomaterials to a passive role dictated by the constituents of the tissue surrounding it. Within the Department of Materials Science and Engineering at Berkeley.

Chemical and Electrochemical Materials Science and Engineering. This area comprises both the chemical and electrochemical processing of
material and the chemical and electrochemical behavior of materials. The former includes the scientific and engineering principles used in mineral processing, mining, and metallurgy. The latter includes the environmental degradation of materials, the compatibility of materials with the environment, and the fundamental science and engineering development of materials used in advanced energy storage devices.

Computational Materials Science and Engineering. Computational methods are becoming increasingly useful in all facets of materials science and engineering. Such methods range from the theoretical prediction of the electronic and structural properties of materials to modeling fluid flow through porous media. In intimate contact, these various materials with precisely controlled properties perform successfully undertake graduate study in materials science.

A combination of coursework and research normally leads to the M.S., M.Eng., or Ph.D. degrees, qualifying the graduate for a wide range of positions (industry, governmental organizations, or universities) that entail research or engineering in the production, development, and use of materials. The coursework includes a core program in materials science and engineering, along with additional courses that provide breadth. MSE students may elect to follow the designated emphasis in nanoscale science and engineering. Further information is available at nano.berkeley.edu/education/DEGradHtml.html.

Topics for graduate research include studies in biomaterials, electronic, magnetic and optical materials; structural and chemical and electrochemical science and engineering; and computational materials science and engineering. Considerable variety is available to students. The topics vary from department to department and also from department to department between faculty members in the faculty. The coursework includes a core program in materials science and engineering.

Materials for Energy Technologies. Materials play a crucial enabling role in the energy technologies of the future. Energy harvesting, energy conversion, storage, delivery, and energy conservation are all included in this topic. Specific examples include photovoltaics, nuclear, solar, wind, fission, and fusion fuel cells, mechanical transducers, batteries, low loss conductors, low density structural materials for weight savings, and integrated materials systems for automated control of energy utilization. Technical courses relevant to this field of study are selected from undergraduate offerings in Materials Science and Engineering, Chemical Engineering, Nuclear Engineering, or Mechanical Engineering, and one course on energy policy may be included.

Nanomaterials. The science of materials at the nanoscale provides a rich scholarly focus at the confluence of basic science (physics, chemistry, biology, and mathematics) and the engineering disciplines. A scientific and disciplinary focus will provide undergraduates with a comprehensive view of the key materials science issues in nanoscience and nanotechnology. Several courses on nanoscale processing, characterization, and computational approaches to understand nanomaterials are being offered under this concentration.

Structural Materials. This area focuses on the relationships between the chemical and physical structure of materials and their properties and performance. Representation of the structural class—metallurgical, ceramic, polymeric, or composite—an understanding of the structure-property relationships provide a scientific basis for developing engineering materials for advanced applications. Fundamental and applied research in this field responds to an ever-increasing demand for improved or better-characterized materials.

Undergraduate Program

Students must complete a minimum of 120 units, in which they must satisfy the University of California general education requirements listed in this catalog. In addition, students must complete the requirements for the College of Engineering and the materials science and engineering program. Full details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study available online at coe.berkeley.edu/college-of-engineering-announcement. Please also see our areas of emphasis in the announcement.

Graduate Programs

Qualified holders of the bachelor's degree in fields such as materials science and engineering, ceramic engineering, metallurgy, physics, chemistry, and various fields of engineering can all successfully undertake graduate study in materials science.

A combination of coursework and research normally leads to the M.S., M.Eng., or Ph.D. degrees, qualifying the graduate for a wide range of positions (industry, governmental organizations, or universities) that entail research or engineering in the production, development, and use of materials. The coursework includes a core program in materials science and engineering, along with additional courses that provide breadth. MSE students may elect to follow the designated emphasis in nanoscale science and engineering. Further information is available at nano.berkeley.edu/education/DEGradHtml.html.

Topics for graduate research include studies in biomaterials, electronic, magnetic and optical materials; structural and chemical and electrochemical science and engineering; and computational materials science and engineering. A wide variety of facilities is available for processing, including thin film deposition equipment (Epitaxial, Molecula

104. Materials Characterization. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 102 and Engineering 115. The nature, mechanisms, and kinetics of phase transformations and microstructural changes in the solid state. Atom diffusion in solids. Phase transformation processes leading to the growth of new matrix or precipitate phases. Martensitic transformations, spinodal decomposition. The use of phase transformations to control microstructure. (SP) Glaeser

121. Electricity and Magnetic Materials. (4) Three hours of lecture and one day of discussion per week. Prerequisites: Physics 7A-B-C or Physics 7A-B and consent of instructor. Introduction to the physical properties of magnetic and electrical materials; the properties of modern solids with emphasis on semiconductors; control of defects and impurities through physical purification, bulk and thin film crystal growth and doping processes, materials basic of electronic and optical devices (superconductors and semiconductors) and optical fibers; properties of metal and oxide superconductors and their applications. (SP) Devine


1312. Mechanical Behavior of Engineering Mate- rials. (3) Students will receive no credit after taking 113 or Mechanical Engineering 102A. Three hours of lecture and one hour of discussion per week. Prereq- usites: Civil and Environmental Engineering 130 or 130N and Engineering 45. Formerly 113 and Mechanical Engineering 102A. This course covers elastic and plastic deformation under static and dynamic loads. Analysis of prediction and prevention of cracking, frac- ture, fatigue, wear, and environmental factors are addressed. Design issues pertaining to materials selection for load-bearing applications are discussed. Topics include engineering materials, structure-prop- erty relationships, materials selection for design, mechanical behavior of polymers and design of plas- tic components, complex states of stress and strain, elastic deformation and multiaxial loading, plastic deformation and yield criteria, dislocation plasticity and strengthening mechanisms, creep, effects of irradiation, and contact stresses. Also listed as Mechanical Engineering C124. (FSP) Dharan, Komvopoulos

1317. Properties of Dielectric and Magnetic Mate- rials. (3) Three hours of lecture per week. Prerequi- sites: Physics 7A-B-C or Physics 7A-B and consent of instructor. Introduction to the physical principles underlying the dielectric and magnetic properties of solids. Processing-microstructure-property relationships of dielectric mate- rials including piezoelectrics, ferroelectric oxides, and of magnetic materials, including hard- and soft ferromagnets, ferrites, and magneto- optic and resistive materials. The course also covers varieties of grain size and shape (including ceramic varistors), as well as ion-conducting and mixed con- ducting materials for applications in various devices, such as sensors, fuel cells, and electric batteries. (SP) Suzuki

B prefix=language course for business majors
C prefix=course-listed course
H prefix=honors course
R prefix=course satisfies R&AC requirement
AC suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
120. Materials Production. (3) Three hours of lecture per week. Prerequisites: Engineering 45. The principles of metals processing with emphasis on the use of processing to establish microstructures which impart desirable engineering properties. The techniques discussed include solidification, thermal and mechanical processing, welding, joining, and surface treatments. (SP) Gronsky

122. Ceramic Processing. (3) Three hours of lecture per week. Prerequisites: Engineering 45, 115. Powder fabrication by grinding and chemical methods, rheological behavior of powders, forming methods, thermal processing, and grain growth. Relation of processing steps to microstructure development. (F) Glaeser

123. Semiconductor Processing. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: MSE 112 or equivalent. Deformation and fracture behavior of engineering ceramics, glasses, and polycrystalline and single-crystal silicon. (SP) Staff

130. Experimental Materials Science and Design. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Senior standing or consent of instructor. This course provides a culminating experience in the engineering core course, focusing on the design and testing of advanced materials. Laboratory experiments are undertaken in a variety of areas from the investigations on semiconductor materials to the discovery of new metallic alloys. Emphasis is on the design of experiments that enable students to gain a fundamental understanding of the science of materials engineering. (F) Dubon

140. Nanomaterials for Scientists and Engineers. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 102 or equivalent recommended. Physical principles of semiconductor and engineering nanomaterials. This course introduces the fundamental principles needed to understand the behavior of materials at the nanometer length scale and the different classes of nanostructure used in technological applications ranging from information technology to biotechnology. Topics include: introduction to different classes of nanomaterials, synthesis and characterization of nanomaterials, and the electronic, magnetic, optical, and mechanical properties of nanomaterials. (SP) Minor

150. Introduction to Materials Chemistry. (3) Three hours of lecture per week. Prerequisites: Chemistry 104B is recommended. The application of basic chemical principles to problems in materials discovery, design, and synthesis will be discussed. Topics covered will include inorganic solids, nanoscale materials, polymers, and biological materials, with specific focus on the ways in which atomic-level interactions determine the structure and properties of matter. Also listed as Chemistry C150. (SP)

151. Polymeric Materials. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A or Engineering 5. 103 is recommended. This course is designed for upper division undergraduate and graduate students interested in the preparation and science of polymeric materials. Beginning with a treatment of ideal polymeric chain conformations, it develops the thermodynamics of polymer blends and solutions, the modeling of polymer network and gelation, the dynamics of polymer chains, and the morphologies of thin films and other dimensionally-restricted structures relevant to nanotechnology. (SP) Xu

H194. Honors Undergraduate Research. (1-4) Course may be repeated for credit. Variable format. Prerequisites: Upper division GPA of 3.3 or higher and consent of instructor and adviser. Students who have completed a satisfactory number of advanced courses with a GPA of 3.3 or higher may pursue original research under the direction of the members of the staff. A minimum of 3 units of H194 may be used to fulfill technical elective requirements in the Materials Science and Engineering program or double major requirements (unlike 198 or 199, which do not satisfy technical elective requirements). Final report required. (F,SP) Staff

195. Special Topics for Advanced Undergraduates. (1-4) One hour of directed group study per week. Prerequisites: Upper division technical GPA of 3.3 or higher and consent of instructor and adviser. Students who have completed a satisfactory number of advanced courses with a GPA of 3.3 or higher may pursue original research under the direction of the members of the staff. A minimum of 3 units of H194 may be used to fulfill technical elective requirements in the Materials Science and Engineering program or double major requirements (unlike 198 or 199, which do not satisfy technical elective requirements). Final report required. (F,SP) Staff

198. Directed Group Studies for Advanced Undergraduates. (1-4) Must be taken on a pass/not pass basis. Prerequisites: Upper division standing in Engineering. Group studies of selected topics. (F,SP) Staff

200A. Survey of Materials Science. (4) Four hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. A survey of materials science covering the broad ground covered by the beginning graduate student for those who did not major in the field as undergraduates. Focus on the nature of microstructure and its manipulation and control to determine engineering properties. Reviews bonding, lattice and structure, the chemical, electromagnetic and mechanical properties of materials, and introduces the student to microstructural engineering. (F) Morins

200A. Thermodynamics and Phase Transformations in Solids. (4) Four hours of lecture per week. Prerequisites: 102, 103, Engineering 115, or consent of instructor. 201A is prerequisite to 210B. The laws of thermodynamics, fundamental equations for multi-component elastic solids and electromagnetic media, equilibrium criteria. Application to solution thermodynamics of dilute solutions, solid solutions, ferroelectric transitions, Landau rule, symmetry rules. Interfaces, nucleation theory, elastic effects. Kinetics: diffusion of heat, mass and charge; coupled flows. (F,SP) Chrzan, Morris

202. Crystal Structure and Bonding. (3) Three hours of lecture per week. Regular, irregular arrays of points, spheres; lattices, direct, reciprocal; crystallographic point and space groups; atomic structure; bonding in molecules; bonding in solids; ionic (Pauling rules), covalent, metallic bonding; structure of metal compounds, minerals, polymers. (F,SP) Chrzan

204. Theory of Electron Microscopy and X-Ray Diffraction. (3) Three hours of lecture per week. Prerequisites: Physics 7C or consent of instructor. How x-ray diffraction can provide information on the crystal structures determined by lattice defects. This course treats in detail the structure of crystal defects, defect formation and annihilation processes, and the influence of lattice defects on the physical and optical properties of crystalline materials. (SP) Staff

C211. Mechanics of Solids. (3) Students will receive no credit for 231 after taking Civil Engineering 231A or 231B prior to Fall 1992. Three hours of lecture per week. Prerequisites: Physics 7C or consent of instructor. Mechanical response of materials: Simple tension in elastic, plastic and viscoelastic members. Continuum mechanics: The stress and strain tensors, equilibrium criteria. Application to solution thermodynamic principles, analytical techniques to problems in materials discovery, design, and synthesis will be discussed. Topics covered will include inorganic solids, nanoscale materials, polymers, and biological materials, with specific focus on the ways in which atomic-level interactions determine the structure and properties of matter. Also listed as Chemistry C150. (SP)

C212. Defo

213. Environmental Effects on Materials Proper...
215. Computational Materials Science. (3) Two hours of lecture and three hours of computer laboratory per week. Prerequisites: Graduate standing in engineering, physics, or materials science or consent of instructor. Introduction to computational materials science. Development of atomic scale simulations for materials science applications. Application of kinetic Monte Carlo, molecular dynamics, and ab initio electronic energy techniques to the modeling of surface diffusion processes, elastic constants, ideal shear strengths, and defect properties. Introduction to simple numerical methods for solving coupled differential equations and for studying correlation functions. (F) Chtrzn

C216. Macromolecular Science in Biotechnology and Medicine. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Bioengineering 115 or equivalent; open to seniors with consent of instructor. Overview of the problems associated with the selection and function of polymers used in biotechnology and medicine. Principles of polymer science, polymer synthesis, and structure-property-performance relationships of polymers. Particular emphasis is placed on the performance of polymers in biological environments. Interactions between macromolecular and biological systems for therapy and diagnostics. Applications will include drug delivery, gene therapy, tissue engineering, and surface engineering. Also listed as Bioengineering C216. (SP) Healy

220. Rate Phenomena in the Synthesis and Processing of Materials. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing in Engineering. Fluid mechanics, heat and mass transport, and chemical reaction kinetics relevant to the synthesis and processing of metals, ceramics, electronic materials, and specialized polymers. (SP) Staff

221. Fuel Cells, Batteries, and Chemical Sensors: Principles, Processes, Materials, and Technology. (3) Three hours of lecture per week. Prerequisites: Engineering 115. We first consider the principles and electrode processes of electrochemical devices, chiefly fuel cells, but also batteries and chemical sensors. Then we discuss various transport processes in liquid, polymeric, and solid electrolytes. AC and DC analytical methods are introduced. We discuss various fuel cell types, the effects of fuel type on efficiency, and the choices of materials. Finally, we discuss issues of fabrication systems. Time permitting, we may include some laboratory experiments. (SP) DeJonghe

223. Semiconductor Materials. (3) Three hours of lecture. Prerequisites: Physics 7C or consent of instructor. Semiconductor purification and crystal growth techniques. Doping, radiation damage, and annealing. Metal-semiconductor interfaces and reaction kinetics. Quantum transport defects and impurities during processing of devices. Major electronic and optical methods for the analysis of semiconductors. (F) Haller

224. Magnetism and Magnetic Materials. (3) Three hours of lecture per week. Prerequisites: 111 or equivalent or consent of instructor; 117 recommended. This course covers the fundamentals of magnetic and magnetic materials in the first two-thirds of the class. Topics include magnetic moments in classical versus quantum mechanical pictures, diamagnetism, paramagnetism, ferrimagnetism, antiferromagnetism, and magnetostriiction. Magnetic materials covered include ferromagnetic, ferrimagnetic, and antiferromagnetic materials. Magnetic properties of grains, single-domain, and multidomain magnetic materials are introduced. Molecular field theory is introduced. (SP) Doyle

C225. Thin-Film Science and Technology. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering. Thin-film nucleation and growth, microstructural evolution and reactions. Comparison of thin-film deposition techniques. Characterization techniques. Formation by ion implantation and rapid annealing. Processing-microstructure-property-performance relationships in the context of applications in information storage, ICs, micro-electro-mechanical systems, and optoelectronics. Also listed as Applied Science and Technology C225. (SP) Staff

226. Photovoltaic Materials: Modern Technologies in the Context of a Growing Renewable Energy Market. (3) Three hours of lecture per week. Prerequisites: Material Science and Mineral Engineering 111 or 123 or consent of instructor. A firm foundation of basic electronic and optical properties of semiconductors and basic semiconductor device physics. This technical course focuses on the fundamentals of photovoltaic energy conversion, with respect to the physical principles of operation and design of efficient semiconductor solar cell devices. This course aims to equip students with the concepts and analytical skills necessary to assess the utility and viability of various modern photovoltaic technologies in the context of a growing global renewable energy market. Also listed as Energy and Resources Group C226. (F) Kammern, Haller

241. Electron Microscopy Laboratory. (2) Six hours of laboratory per week. Prerequisites: 204 (can be taken concurrently). Basic techniques and operations of transmission, and scanning, electron microscopy; X-ray microanalysis, energy loss spectroscopy; specimen preparation; data; individual projects in materials science. (SP) Gronsky, Minor

242. Advanced Characterization Techniques. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 204 or 205 or consent of instructor. Advanced electrical, optical, magnetic and ion beam characterization techniques including deep level transient spectroscopy. Photo-luminescence, electron paramagnetic resonance, and Rutherford backscattering, are used to characterize crystalline materials (with emphasis on semiconductors). (SP) Staff

251. Polymer Surfaces and Interfaces. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A or Engineering 5; Material Science and Engineering 151 recommended. The course is designed for graduate students to gain a fundamental understanding of the surface and interfacial science of polymeric materials. Beginning with a brief introduction of the principles of polymeric phase behavior in bulk, it develops the thermodynamics of polymers in thin films and at interfaces, the characterization techniques to assess polymer behavior in thin films and at interfaces, and the advantages of polymer thin films and other dimensionally-restricted structures relevant to nano- and biotechnology. Field trips to national user facilities, laboratory demonstrations and hands-on experiments, and guest lectures will augment the course lectures. (F) Xu

260. Surface Properties of Materials. (3) Three hours of lecture per week. Formerly Mineral Engineering 260. Thermodynamics of surfaces and phase boundaries, surface tension of solids and liquids, surface activity, adsorption, phase equilibria, and contact angles, electrochemical double layers at interfaces, theory, and applications. (SP) Doyle

C261. Introduction to Nanoscience and Engineering. (3) Three hours of lecture per week. Prerequisites: Major in physical science, such as chemistry, physics, or materials science; or consent of instructor. A three-module introduction to the fundamental topics of Nanoscience and Engineering (NSE) theory and research within chemistry, physics, biology, nanomaterials, quantum systems, and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomolecular nanoscale objects, and devices based on nanoscale structures. Students must take this course to satisfy the NSE Designated Emphasis core requirement. Also listed as Bioengineering C280, Nanoscale Science and Engineering C201, and Physics C201. (F,SP) Gronsky, S.W. Lee, Wu

290A. Special Topics in Materials Science. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly 290M. Lectures and approximately 10 hours of research per week in selected topics of current interest in materials science and engineering. (F,SP) Staff

290M. Special Problems in Materials Science. (3) Three hours of lecture per week. Prerequisites: 201A-201B or consent of instructor. Topics of particular interest in greater depth. (SP) Morris

298. Group Studies, Seminars, or Group Research. (1-8) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Advanced study in various subjects through special seminars on topics to be selected each year, informal group studies of special problems, group participation in comprehensive design problems or group research on complete problems for analysis and experimentation. (F,SP) Staff

299. Individual Study or Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual investigation of advanced materials science problems. (F,SP) Staff

601. Individual Study for Master’s Students. (1-8) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual study for Master’s students. Must be taken for credit. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the field adviser. (F,SP) Staff

Mathematics

(Graduate Program in Mathematics)

Department Office: 970 Evans Hall, (510) 642-6550 math.berkeley.edu

Chair: Alan D. Weinstein, Ph.D.

University Professors
Alexandre J. Chorin, Ph.D. New York University. Applied mathematics, turbulence, numerical methods, nonlinear PDEs.
Richard M. Karp, Ph.D. Harvard University. Computer science and bioinformatics.

Professors
David Aldous, Ph.D. University of Cambridge. Theoretical and applied probability.
Robert M. Anderson, Ph.D. Yale University. Mathematical economics, nonstandard analysis, probability theory.
George B. Bergman, Ph.D. University of California, Berkeley. Rings, fields, and modules; abstract algebra; differential rings, universal algebra and category theory, counterexamples.
Robert Braun, Ph.D. University of North Carolina, Chapel Hill. Nonlinear partial differential equations and differential geometry, exterior differential systems and global analysis, and Finsler geometry.
Michael Christ, Ph.D. University of California, Berkeley. Harmonic analysis, partial differential equations, complex analysis in several variables, and operator theory.
Robert F. Coleman, Ph.D. Princeton University. Number theory, arithmetic geometry, p-adic analysis and number theory.
James W. Demmel, Ph.D. University of California, Berkeley. Numerical analysis, high performance computing.
David Eisenbud, Ph.D. University of Chicago. Algebraic geometry, commutative algebra, computation.
L. Craig Evans, Ph.D. University of California at Los Angeles. Partial differential equations.
Steve Evans, Ph.D. University of California. Probability and stochastic processes.

Mathematics / 349

prefix=honor course

prefix=course satisfies R&C requirement

prefix=course satisfies American Cultures Requirement

prefix=Graduate of the Professor School

prefix=Recipient of the Distinguished Teaching Award

prefix=honor course
The Major Programs

The department offers undergraduate major programs in mathematics and applied mathematics leading to the B.A. degree. These programs provide excellent preparation for advanced degrees in math, physical sciences, economics, and industrial engineering, as well as graduate study in business, education, law, and medicine. They also prepare students for work in business, technology, industry, teaching, government, and finance. The requirements for both majors are summarized below. See the Department of Mathematics web site for more information at math.berkeley.edu/undergraduate.html.

Students should contact an undergraduate adviser in 962, 964, or 965 Evans Hall about requirements for admission to the major.

General Major Requirements. Both major programs require a lower-division basic sequence in Mathematics 1A-1B, 53, 54, and 55, plus one additional upper division math course. Math 16A-1B is not an acceptable alternative to Math 1A-1B. Math 1A-1B must be completed with an average grade of C or better; Math 53, 54, and 55 must be completed with minimum grades of C in each. Eight upper-division courses are required for either major. Specific course requirements follow.

Major in Mathematics. (1) Four core courses 104, 110, 113 and 185; (2) two semi- electives: select one course from each of the following three subject areas: (a) Computing (128A); (b) Geometric Topology (130, 140, 141, 142, 143); (c) Logic and foundations (125A, 135, 136); (3) Two upper-division math electives. With the approval of the major adviser, students may count two mathematically theoretical courses in computer science, statistics, physics, astronomy, mathematical economics, or other sciences toward requirements for the major in mathematics.

Major in Mathematics with a Teaching Concentration. The new teaching concentration is designed to increase the number and quality of math teachers. It requires the completion of three new courses, Math 151, 152, and 153, and includes a modification to the typical major course sequence. Please see math.berkeley.edu for more information.

Major in Applied Mathematics. (1) 104, 110, 113, 128A, and 185; (2) Three additional upper division courses, approved by a major adviser, which form a coherent cluster in some applied area such as actuarial science, biophysics, classical mechanics, computer science, decision theory, economics, fluid mechanics, geophysics, mathematical biology, numerical analysis, operations research, probability theory, quantum mechanics, systems theory. Other clusters are also possible.

Honors Program. In addition to completing the requirements for the major in mathematics or applied mathematics, students in the honors program must: (1) earn a GPA of at least 3.5 in upper division and graduate courses in the major and at least 3.3 in all courses taken at the University; (2) complete either Math 196, in which they will write a senior honors thesis, or pass two graduate mathematics courses with a grade of at least A-; (3) receive the recommendation of their major adviser. Students interested in the honors program should consult with their major adviser early in their program, preferably by their junior year.

The Minor Program

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. The minor program in the Department of Mathematics consists of the following coursework:

Prerequisites: Mathematics 1A-1B and 54 (or their equivalents). These courses must be taken for a letter grade and must be passed with average grades of C or better.

Minor Requirements: Mathematics 104, 110, 113, and 185, plus one additional upper division mathematics course. These five courses must each be taken for a letter grade, and a minimum GPA of 2.0 is required for upper division courses applied to the minor program. At least three of the five courses must be completed at Berkeley. One upper division class from your minor may overlap with your major.

For more information about this program, please contact an undergraduate adviser in 962, 964, or 965 Evans Hall.

Preparation for Graduate Study

Students preparing for the Ph.D. in mathematics are strongly advised to acquire a reading knowledge of one foreign language from among French, German, and Russian. Graduate students also often take one or more of the following introductory graduate courses: 202A-202B, 214, 225A-225B, 228A-228B, 250A-250B.

Graduate Programs

The department offers the M.A. degree in mathematics and Ph.D. degrees in mathematics and applied mathematics. Detailed information concerning admission, graduate student instructorships and fellowships, and departmental requirements is given in the Graduate Announcement of the Department of Mathematics, which is available online at math.berkeley.edu/graduate.html.
Courses and Seminars

Courses and seminars are listed below. More detailed and up-to-the-minute information on seminar offerings, instructors, textbook/course and seminar content, teaching and grading methods, and schedules are posted on the ninth floor of Evans Hall and are available online at math.berkeley.edu.

Math 1A-1B is the calculus sequence intended for students planning majors in mathematics, engineering, or the sciences. The sequence is also acceptable as a substitute for Math 16A-1B. It is designed to prepare students for further courses in mathematics.

Math 16A-16B is a terminal calculus sequence intended for students planning majors in the life or social sciences.

Math 32 is intended for students who wish to take Math 1A or 16A but have not met the prerequisites.

Lower Division Courses

1A. Calculus. (4) Students will receive no credit for 1A after taking 16B and 2 units after taking 16A. Three hours of lecture and two hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week. Prerequisites: Three and one-half years of high school math, including trigonometry and a satisfactory grade in one of the following: CEEB MAT test, an AP test, the UC/CSU math diagnostic test, or 32. Consult the Mathematics department for details. Students with AP credit should consult the instructor regarding the possibility of receiving course credit in advance of enrollment. This sequence is intended for majors in engineering and the physical sciences. An introduction to differential and integral calculus of functions of one variable with applications and an introduction to transcendental functions. (F,S,P)

1B. Calculus. (4) Students will receive 2 units of credit for 1B after taking 16B. Three hours of lecture and two hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week. Prerequisites: 1A. Continuation of 1A. Techniques of integration; applications of integration. Infinite sequences and series. First-order ordinary differential equations. Second-order ordinary differential equations; oscillation and damping; series solutions of ordinary differential equations. Second-order ordinary differential equations. (F,S,P)

32. Precalculus. (4) Students will receive no credit for 32 after taking 1A-1B or 16A-16B and will receive 3 units after taking 96. Two hours of lecture and two hours of discussion per week; plus, at the instructor’s discretion, an extra hour of lecture/discussion per week. Prerequisites: Three years of high school mathematics, plus satisfactory score on one of the following: the CEEB MAT test, an AP test, or UC/CSU math diagnostic exam. Polynomial and rational functions, exponential and logarithmic functions, trigonometry and trigonometric functions. Complex numbers, fundamental theorem of algebra, conic sections, polar coordinates. Vectors in two- and three-dimensional Euclidean spaces. Partial derivatives. Multiple integrals. Vector calculus. Theorems of Green, Gauss, and Stokes. (F,S,P)

16A. Analytic Geometry and Calculus. (3) Students will receive no credit for 16A after taking 1A. Two units of credit may be awarded for 16A after taking 1B. Two hours of lecture and one hour of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop at the discretion of the instructor, an additional hour of discussion/workshop per week. Prerequisites: Three years of high school math, including trigonometry, plus a satisfactory grade in one of the following: CEEB MAT test, an AP test, the UC/CSU math diagnostic test, or 32. Consult the Mathematics department for details. Students with AP credit should consult the instructor regarding the possibility of receiving course credit in advance of enrollment. This sequence is intended for majors in the life and social sciences. Calculus of one variable; derivatives, definite integrals and applications, maxima and minima, and applications of the exponential and logarithmic functions. (F,S,P)

16B. Analytic Geometry and Calculus. (3) Students will receive no credit for 16B after 1B, 2 units after 1A. Two units of 16B may be used to remove a deficiency in Math 1A. Two hours of lecture and one hour of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop per week. Prerequisites: 16A. Continuation of 16A. Application of integration of economics and the social sciences, physical sciences, and business applications. Functions of many variables. Partial derivatives, constrained and unconstrained optimization. (F,S,P)

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for five weeks. Sections 3-4 to be graded on a letter-grade basis. Sections 5-6 to be graded on a pass/no pass basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in a limited department; topics vary from department to department and semester to semester. (F,S,P)

53. Multivariable Calculus. (4) Students will receive 1 unit of credit for 53 after taking 50B and 3 units of credit after taking 50A. Three hours of lecture and two hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week. Prerequisites: 50A. Parametric equations and polar coordinates. Vectors in two- and three-dimensional Euclidean spaces. Partial derivatives. Multiple integrals. Vector calculus. Theorems of Green, Gauss, and Stokes. (F,S,P)

30. Linear Algebra. (4) Students will receive 1 unit of credit for 30 after taking 50B and 3 units of credit after taking 50A. Three hours of lecture and two hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week. Prerequisites: 50A. Eigenvalues and eigenvectors; linear transformations; inner product spaces. Eigenvalues and eigenvectors; linear transformations. Homogeneous ordinary differential equations; first-order differential equations with constant coefficients. Fourier series and partial differential equations. No prior computer experience is necessary. (F,S,P)

54. Linear Algebra and Differential Equations with Computers. (4) Students will receive no credit for 54M after taking 54, 1 unit after taking 50B. Three hours of lecture and three hours of discussion/microcomputer laboratory per week. Prerequisites: 1BM or 1B. This course will cover the same material as 54. Basic arithmetic and computer operations, computer graphic software, and programs. Determinants. Vector spaces, inner product spaces. Eigenvalues and eigenvectors; vector spaces. Eigenvalues and eigenvectors; linear transformations. Homogeneous ordinary differential equations; first-order differential equations with constant coefficients. Fourier series and partial differential equations. No prior computer experience is necessary. (F,S,P)

55. Discrete Mathematics. (4) Students will receive no credit for 55 after taking Computer Science 70. Three hours of lecture and two hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week. Prerequisites: Mathematical maturity appropriate to a sophomore math class. 1A-1B recommended. Logic, mathematical induction sets, relations, and functions. Introduction to graphs, elementary number theory, combinatorics, algebraic structures, and discrete probability theory. (F,S,P)

74. Transition to Upper Division Mathematics. (3) Three hours of lecture and two hours of discussion per week. Prerequisites: 53 and 54. The course will focus on reading and understanding mathematical proofs. It will emphasize precise thinking and the presentation of mathematical results, both orally and in written form. The course is intended for students who are considering majoring in mathematics but wish additional training. (F,S,P)

84. Sophomore Seminar. (1-2) Course may be repeated for credit. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are offered for credit. Students planning major in mathematics but wish additional training. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,S,P)

H90. Honors Undergraduate Seminar in Mathematical Problem Solving. (1) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor; undergraduate standing. This seminar is designed especially, but not exclusively, to prepare students for the national Putnam Mathematical Competition in December. Students will develop problem solving skills and experience by attempting the solution of challenging mathematical problems that require insight more than knowledge. (F)

98. Supervised Group Study. (1-4) Must be taken in conjunction with a Directed Group Study, topics vary with instructor. (F,S,P)

Upper Division Courses

C103. Introduction to Mathematical Economics. (3) Three hours of lecture per week. Prerequisites: 53 and 54. Formerly 103. Selected topics illustrating the application of mathematics to economic theory. Topics are selected to highlight important concepts in microeconomics and macroeconomics. It is intended primarily for mathematics majors planning to go on to graduate school in mathematics, statistics, the physical sciences, and engineering, and for economics majors with adequate mathematical preparation. No prior economic background required. Also listed as Economics 103. Staff

104. Introduction to Analysis. (4) Three hours of lecture per week; at the discretion of the instructor, an additional two hours of discussion per week. Prerequisite: 5A. Exponentiation; complex numbers; elementary set theory. Sequences and series; limits; the completeness of the real numbers. Functions of one variable: continuity, fundamental properties of the real line. Uniform convergence and differentiation. The Riemann integral. The fundamental theorem of calculus. Functions of several variables: metric spaces, continuity, differentiation. Functions of several variables: metric spaces, continuity, differentiation. The Riemann integral. The fundamental theorem of calculus. Functions of several variables: metric spaces, continuity, differentiation. The Riemann integral. The fundamental theorem of calculus.
110. Linear Algebra. (4) No credit allowed after completion of Math 112 or 113B. Three hours of lecture per week and an additional two hours of discussion at the discretion of the instructor. Prerequisites: 54 or a course with equivalent linear algebra content. Matrices, vector spaces, linear transformations, inner products, determinants. Eigenvectors. QR factorization. Quadratic forms and Rayleigh's principle. Jordan canonical form, applications. Linear functionals. (F,SP)

Staff

H110. Linear Algebra. (4) No credit allowed after completion of Math 112 or 113B. Three hours of lecture per week. Prerequisites: 54 or a course with equivalent linear algebra content. Honors section corresponding to course 110 for exceptional students with strong mathematical inclination and motivation. Emphasis is on rigor, depth, and hard problems. (SP)

113. Introduction to Abstract Algebra. (4) Three hours of lecture per week; at the discretion of the instructor, an additional two hours of discussion per week. Prerequisites: 54 or a course with equivalent linear algebra content. Field theory, groups, rings, and fields not covered in Math 113. Possible topics at the discretion of the instructor. (F,SP)

116. Cryptography. (4) Three hours of lecture per week. Prerequisites: 55. Construction and analysis of simple crytography; public key cryptography; RSA signature schemes, key distribution, hash functions, elliptic curves, and applications. (F,SP)

118. Fourier Analysis, Waves, and Signal Processing. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Introduction to Fourier analysis and wavelets including Fourier analysis and wavelets. Theory, algorithms, and applications to one-dimensional signals and multidimensional images. (F,SP)

121A. Mathematical Tools for the Physical Sciences. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Intended for students in the physical sciences who are not planning to take more advanced mathematics courses. Rapid review of series and partial differentiation, complex variables and analytic functions, integral transforms, calculus of variations. (F,SP)

121B. Mathematical Tools for the Physical Sciences. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Intended for students in the physical sciences who are not planning to take more advanced mathematics courses. Special functions, series solutions of ordinary differential equations, partial differential equations arising in mathematical physics, probability theory. (SP)

123. Ordinary Differential Equations. (4) Three hours of lecture per week. Prerequisites: 54. Existence and uniqueness of solutions, linear systems, regular singular points. Other topics selected from analytic systems, autonomous systems, Sturm-Liouville Theory. (F)

125A. Mathematical Logic. (4) Three hours of lecture per week. Prerequisites: 113 or consent of instructor. Sentential and quantificational logic. Formal grammar, semantical interpretation, formal deduction, and their interrelation. Applications to formalized mathematical theories. Selected topics from model theory or proof theory. (F,SP)

126. Introduction to Partial Differential Equations. (4) Three hours of lecture per week. Prerequisites: 53 and 54. An introduction to problems for hyperbolic and parabolic equations, boundary value problems for elliptic equations, Green's functions, maximum principles, a priori bounds, Fourier transform. (SP)

127. Mathematical and Computational Methods in Molecular Biology. (4) Three hours of lecture per week. Prerequisites: 53, 54, and 55; Statistics 20 recommended. Introduction to mathematical and computational problems arising in the context of molecular biology. Topics include biostatistics, probability, statistics, geometry, and topology to problems ranging from sequence determination to structure analysis. (F,SP)

128A. Numerical Analysis I. (4) Three hours of lecture per week and one hour of discussion per week. At the discretion of the instructor, an additional hour of discussion per week. Prerequisites: 53, 54, and 55; Statistics 20 recommended. Introduction to numerical analysis. (F,SP)

128B. Numerical Analysis II. (4) Three hours of lecture and one hour of discussion per week. At the discretion of the instructor, an additional hour of discussion per week. Prerequisites: 53, 54, and 55. Topics in numerical analysis including Fourier analysis, continued fractions, partitions, quadratic fields, asymptotic distributions, additive problems. (F,SP)

130. The Classical Geometries. (4) Three hours of lecture per week. Prerequisites: 110 and 113. A critical examination of Euclid's Elements; ruler and compass constructions; connections with Galois theory; Hilbert's axioms for geometry, theory of areas, introduction to non-Euclidean geometry, regular solids, projective geometry. (F,SP)

135. Introduction to the Theory of Sets. (4) Three hours of lecture per week. Prerequisites: 110 and 113. A critical examination of Euclid's Elements; ruler and compass constructions; connections with Galois theory; Hilbert's axioms for geometry, theory of areas, introduction to non-Euclidean geometry, regular solids, projective geometry. (F,SP)


140. Metric Differential Geometry. (4) Three hours of lecture per week. Prerequisites: 104. Frenet formulas, isometric inequality, local geometry in Euclidean space, first and second fundamental forms. Gaussian and mean curvature, isometries, geodesics, parallelism, the Gauss-Bonnet-Von Dyck Theorem. (F,SP)

141. Elementary Differential Topology. (4) Three hours of lecture per week. Prerequisites: 104 or equivalent and linear algebra. Manifolds in n-dimensional Euclidean space and smooth maps, Sard's Theorem, transversality and intersection modulo 2. (F,SP)

142. Elementary Algebraic Topology. (4) Three hours of lecture per week. Prerequisites: 104 and 113. The topology of one and two dimensional spaces: manifolds and triangulation, classification of surfaces, covering spaces. (F,SP)

151. Mathematics of the Secondary School Curriculum I. (4) Three hours of lecture and zero to one hour of discussion per week. Prerequisites: 1A-1B, 53, or equivalent. Theory of rational numbers based on the number line, the Euclidean algorithm and fractions in lowest terms. The concepts of congruence and similarity, equation of a line, functions, and quadratic functions. (F,SP)

Staff

152. Mathematics of the Secondary School Curriculum II. (4) Three hours of lecture and zero to one hour of discussion per week. Prerequisites: 1A-1B, 53, or equivalent. Complex numbers and Fundamental Theorem of Algebra, roots and factorizations of polynomials, Euclidean geometry and axiomatic systems, basic trigonometry. (F,SP)

153. Mathematics of the Secondary School Curriculum III. (4) Three hours of lecture and zero to one hour of discussion per week. Prerequisites: 1A-1B, 53, or equivalent. Functions and functional equations, families and selected topics from more recent mathematical history. (SP)

170. Mathematical Methods for Optimization. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Linear programming and a selection of topics from among the following: matrix games, integer programming, semidefinite programming, nonlinear programming, convex analysis and geometry, polyhedral geometry, the calculus of variations, and control theory. (F,SP)

Staff

172. Combinatorics. (4) Three hours of lecture per week. Prerequisites: 53. Basic combinatorial principles, graphs, partially ordered sets, generating functions, asymptotic methods, combinatorics of permutations and partitions, designs and codes. Additional topics at the discretion of the instructor. (F,SP)

185. Introduction to Complex Analysis. (4) Three hours of lecture per week; at the discretion of the instructor, an additional two hours of discussion per week. Prerequisites: 104. Analytic functions of a complex variable. Cauchy's integral theorem, power series, Laurent series, singularities of analytic functions, the residue theorem with application to definite integrals. Some additional topics such as conformal mapping. (F,SP)

Staff

H185. Introduction to Complex Analysis. (4) Three hours of lecture per week. Prerequisites: 104. Honors
187. Fourier Analysis. (4) Three hours of lecture per week. Prerequisites: 104, 113, and 185. Course gives a comprehensive view of analysis. Emphasis is on the interrelations among topics taken from differential equations, harmonic analysis and group representation, elementary functional analysis and special functions.

189. Mathematical Methods in Classical and Quantum Mechanics. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 104, 113, and 185. Topics in mechanics presented from a mathematical viewpoint: e.g., hamiltonian mechanics and symplectic geometry, differential equations for fluids, spectral theory in quantum mechanics, probability theory and statistical mechanics. See department bulletins for specific topics each semester course is offered. (SP)

191. Experimental Courses in Mathematics. (1-4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Consent of instructor. The topics to be covered and the method of instruction to be used will be announced at the beginning of each semester that such courses are offered. See department bulletins. (F,SP)

195. Special Topics in Mathematics. (4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Permission of instructor. Lectures on special topics, which will be announced at the beginning of each semester that the course is offered.

196. Honors Thesis. (4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Admission to the Honors Program; an overall GPA of 3.3 and a GPA of 3.5 in the major. Independent study of an advanced topic leading to an honors thesis. (F)

197. Field Study. (1-4) Three hours of work per week per unit. Prerequisites: Upper division standing. Written proposal signed by faculty sponsor and approved by department chair. For math/applied math majors. Supervised experience relevant to specific aspects of their mathematical emphasis of study in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. Units will be awarded on the basis of three hours/week/unit. (F,SP) Staff

198. Directed Group Study. (1-4) Group study. Must be taken on a pass/no pass basis. Prerequisites: Must have completed 60 units and be in good standing. Topic varies with instructor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: The standard college requirement for all 199 courses. (F,SP)

Graduate Courses


203. Asymptotic Analysis in Applied Mathematics. (4) Three hours of lecture per week. Prerequisites: 104, 113, and 185. Course gives a comprehensive view of analysis. Emphasis is on the interrelations among topics taken from differential equations, harmonic analysis and group representation, elementary functional analysis and special functions.


208. C*-algebras. (4) Three hours of lecture per week. Prerequisites: 206. Basic theory of C*-algebras. Positivity, spectrum, GNS construction. Group C*-algebras and connection with group representations. Additional topics, for example, C*-dynamical systems, K-theory.

209. Von Neumann Algebras. (4) Three hours of lecture per week. Prerequisites: 206, 208, 212. Theory of von Neumann algebras. Density theorems, topologies and normal maps, traces, comparison of projections, type classification, examples of factors. Additional topics, for example, Tomita Takasaki theory, subfactors, group actions, and noncommutative probability.

210. Advanced Matrix Computations. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. Direct solution of linear systems, including large sparse systems: error bounds, iteration methods, least square approximation, eigenvalues and eigenvectors of matrices, nonlinear equations, and minimization of functions. (F,SP)

222A. Partial Differential Equations. (4) Three hours of lecture per week. Prerequisites: 105 or 202A. The theory of boundary value and initial value problems for partial differential equations, with emphasis on nonlinear equations. Laplace’s equation, heat equation, wave equation, nonlinear first-order equations, conservation laws, Hamilton-Jacobi equations, Fourier transform, Sobolev spaces. (F)

222B. Partial Differential Equations. (4) Three hours of lecture per week. Prerequisites: 105 or 202A. The theory of boundary value and initial value problems for partial differential equations, with emphasis on nonlinear equations. Second-order elliptic equations, and hyperbolic equations, calculus of variations methods, additional topics selected by instructor. (F)

C223A. Stochastic Processes. (3) Course may be repeated for credit with a different instructor. Three hours of lecture per week. The content of this course changes from year to year. Students will be selected from the general theory of processes, sample function properties, weak convergence, Brownian motion, diffusions, Levy processes, Markov processes, and other topics. Also listed as Statistics C220A. (F,SP) Staff

C223B. Stochastic Processes. (3) Course may be repeated for credit with a different instructor. Three hours of lecture per week. The content of this course changes from year to year. Course topics will be selected from the general theory of processes, sample function properties, weak convergence, Brownian motion,...
235A. Sequence begins fall.


257. Group Theory. (4) Three hours of lecture per week. Prerequisites: 254A-254B. Topics such as: generators and relations, infinite discrete groups, groups of Lie type, permutation groups, character theory, solvable groups, simple groups, transfer and cohomological methods.

258. Classical Harmonic Analysis. (4) Three hours of lecture per week. Prerequisites: 206 or a basic knowledge of real, complex, and linear analysis. Basic properties of Fourier series, convergence and summability, conjugate functions, Hardy spaces, boundary behavior of analytic and harmonic functions. Additional topics at the discretion of the instructor.

261A-261B. Lie Groups. (4) Three hours of lecture per week. Prerequisites: 214. Lie groups and Lie algebras, fundamental theorems of Lie, general structure theory; compact, nilpotent, solvable, semi-simple Lie groups; classification theory and representation theory of semi-simple Lie algebras and Lie groups, further topics such as symmetric spaces, Lie transitive G-sets, etc., if time permits. In view of its simplicity and wide range of applications, it is preferable to cover compact Lie groups and their representations in 261A. Sequence begins fall.


270. Hot Topics Course in Mathematics. (2) Course may be repeated for credit as topic varies. One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. This course will give introductions to current research developments. Every semester we will pick a different topic and go through the relevant literature. Each student will be expected to give one presentation. (F,SP) Staff

271. Topics in Foundations. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as the case of seminars.

273. Topics in Numerical Analysis. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as the case of seminars.

274. Topics in Algebra. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as the case of seminars.

275. Topics in Applied Mathematics. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as the case of seminars.

276. Topics in Topology. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as the case of seminars.

277. Topics in Differential Geometry. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as the case of seminars.
278. Topics in Analysis. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the department; content of this course changes, as in the case of seminars.

279. Topics in Partial Differential Equations. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

290. Seminars. (1-6) Course may be repeated for credit. Hours to be arranged. Topics in foundations of mathematics, theory of numbers, numerical calculus, analysis, geometry, topology, algebra, and their applications in means of lectures and informal conferences; work based largely on original memoirs. (F.S.P) Staff

295. Individual Research. (1-12) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Lectures on special topics which will be announced at the beginning of each semester that the course is offered. Topics may include: transport and mixing, geophysical fluid dynamics, bio-fluid dynamics, oceanography, free surface flows, non-Newtonian fluid mechanics, among other possibilities. Also listed as Environ Sci, Policy 290C, Environ Sci 291, Environ Sci 292. Mechanical Engineering C295M. Civil and Environmental Engineering C290K, Engineering C298A, and Bioengineering C290C. (F.S.P) Staff

299. Reading Course for Graduate Students. (1-30) Course may be repeated for credit. Hours to be arranged. Sections 1-30 to be graded on a satisfactory/unsatisfactory basis. Intended for candidates for the Ph.D. degree. (F.S.P) Staff

600. Individual Study for Master's Students. (1-6) Course may be repeated for credit. Course must satisfy unit or residence requirements for master's degree. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for the Master's degree. Individual study for the comprehensive or language requirements in consultation with the field adviser. (F.S.P) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For qualified graduate students. Individual study in consultation with the major field adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for admission to candidacy, writing the Ph.D. thesis, and unit or residence requirements for doctoral degree. (F.S.P) Staff

300. Teaching Workshop. (2) Four hours of lecture per week, plus class visits. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 300, graduate standing and appointment as a Graduate Student Instructor. Mandatory for all graduate student instructors teaching for the first time in the Mathematics department. The course consists of practice teaching, alternatives to standard classroom methods, guidelines for analysis of video recordings, reciprocal classroom visits, and an individual project. (F.S.P) Staff

301. Undergraduate Mathematics Instruction. (1-2) Course may be repeated once for credit. Three hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Permission of SLC instructor, as well as sophomore standing and at least a B average in two semesters of calculus. Apply at Student Learning Center. May be taken for one unit by special permission of instructor. Tutoring at the Student Learning Center or for the Professional Development Program. (F.S.P)

303. Professional Preparation: Supervised Teaching of Mathematics. (2-4) Course may be repeated four times for credit. Meetings Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 300, graduate standing and appointment as a Graduate Student Instructor. Meeting with supervising faculty sections. Evidence in teaching under the supervision of Mathematics faculty. (F.S.P) Staff

Mechanical Engineering
(College of Engineering)

Department Office: 6159 Etcheverry Hall, (510) 642-1388
Chair: Albert Pisano, Ph.D.

Professors
Alice M. Aggripo (The Roseo and Elizabeth Hughes Chair in Mechanical Engineering), Ph.D. Stanford University. Decision and expert systems.
Stanley A. Baer (Professor Emeritus and G. Cook Chair in the College of Engineering), Ph.D. Brown University. Fluid mechanics.
Van P. Carey, Ph.D. State University of New York-Buffalo. Transport in thermophysics of phase-change processes.
James Casey, Ph.D. University of California, Berkeley. Continuum mechanics.
Juh-Yuan Chen (Associate Professor Emeritus, Graduate Division), Ph.D. University of California at San Diego. Combustion, heavy and condensed fuels.
Michael V. Frenklach, Ph.D. Hebrew University. Chemical kinetics, combustion chemistry, chemical vapor deposition growth, laser microfabrication, laser materials processing.
Costas Grigopoulos, Ph.D. Columbia University. Heat and mass transfer.
Costas Grigopoulos, Ph.D. Columbia University. Heat and mass transfer.
Costas Grigopoulos, Ph.D. Columbia University. Heat and mass transfer.

Adjunct Professor
Samuel Mao, Ph.D.

Overview
Mechanical engineers contribute to society by solving problems in transportation, energy, the environment, and human health. The mechanical engineer needs a thorough preparation in mathematics, physics, chemistry, manufacturing processes, properties of materials, mechanics, fluid mechanics, thermodynamics, as well as intensive background in engineering design.

Undergraduate Program
The freshman and much of the sophomore years of the program emphasize mathematics, physics, chemistry, computing, graphics, materials, and statics. Students are introduced to the profession of engineering in their freshman year in Engineering 10 and first exposed to engineering design. The freshman years focus on engineering in all engineering fields, fundamental subjects important to all mechanical engineers and specialization in one or more phases of mechanical engineering.

Professor of the Graduate School
Recipient of Distinguished Teaching Award
to the use of engineering concepts as tools to analyze component and system performance. From this solid foundation, a student synthesizes tools from different sciences and mathematics to design problems. This is the rationale for placing much of the design component of the program in the senior year. Specialization may be provided for the early electives of Chapters 1 through 4 with courses from the subject areas of applied mechanics, automatic controls, electrochemical systems, energy conversion, fluid mechanics, heat transfer, manufacturing systems, materials processing, mechanical design, dynamics, electronics and automation, bioengineering, and environmental engineering.

Because of the widening range of technical problems and the limited amount of specialization available in the undergraduate curriculum, qualified students in the junior year may choose to study the biological sciences and their scientific and technological capability. Further details on undergraduate and graduate fields of emphasis in mechanical engineering are available in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study at coe.berkeley.edu/college-of-engineering-announcement. Please visit the department web site at me.berkeley.edu for information detailing the undergraduate and graduate program.

The B.S. program is accredited in mechanical engineering by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; (410) 347-7700.

**Mechanical Engineering Minor**

The department offers a minor in mechanical engineering that is open to all students not majoring in ME who have completed the necessary prerequisites for the minor requirements. Information is available at me.berkeley.edu/new/undergrad/current.html.

**Graduate Programs**

Both master’s and doctoral programs are available. The student may choose either a scientific emphasis in particular areas or integrated studies directed to professional objectives. Master of Science and Ph.D. degrees are the relevant degrees for the scientific emphasis, and Master of Engineering and D.Eng. degrees for the professional one. Specialization is offered in the following mechanical engineering disciplines: (1) fluid mechanics and dynamics, (2) design, (3) fluids, (4) mechanics, (5) materials, and (6) energy science and technology. Specialization is also offered in the following for the engineering: (2) manufacturing, (3) micro-electromechanical systems (MEMS) and nanoeengineering, (4) mechatronics, (5) energy and environment, and (6) ocean engineering. Details on various aspects of graduate study are available at me.berkeley.edu and from the College of Engineering Announcement.

**Note:** In addition to the courses listed below, the Department of Mechanical Engineering offers the following courses, found in the Engineering section of this catalog: 10, Engineering Design and Analysis; 28, Graphic Communication in Engineering; 117, Methods of Engineering Analysis; 128, Advanced Engineering Design Graphics; 177, Advanced Engineering Computer Aided Design with MATLAB; 193, Engineering Ethics; 193, California Engineer Staff; 230A, Engineering Analysis; 230B, Engineering Analysis; 231, Mathematical Methods in Engineering; 240A, Three hours of laboratory per week per unit for 15 weeks. Three and one-half hours of seminar per week per unit for 10 weeks. Two and one-half hours of seminar per week per unit for 8 weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments in and around the campus. Sophomore seminars are offered for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrolment limited to 15 sophomores. (F,SP) Staff

**C85. Introduction to Solid Mechanics.** (3) Three hours of lecture and one hour of discussion per week. (F,SP) Staff

**92. Introduction to Mechanical Engineering.** (1) One hour of lecture per week. Must be taken on a passed/not passed basis. An outline of the field of mechanical engineering designed to acquaint the entering student with the profession and the activities of the department. (F) Staff

**98. Supervised Independent Group Studies.** (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Organized group study of a technical topic under the sponsorship and direction of a member of the Mechanical Engineering faculty. (F,SP) Staff

**Upper Division Courses**

**101. High Mix/Low Volume Manufacturing.** (3) Three hours of lecture per week. Prerequisites: Upper division standing in engineering or consent of instructor. Fundamentals of high mix/low volume (HMLV) manufacturing systems including manufacturing fundamentals, unit operations and manufacturing line considerations for work in process (WIP), manufacturing lead time (MLT), economics, quality monitoring; HMLV systems fundamentals including just in time (JIT), kanban, buffers and line balancing; class project/case studies for design of competitive manufacturing systems. (F) Dominey, McManus

**102. Mechanical Engineering Design.** (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: C124 and Engineering 28. Formerly 102B. Application of principles of mechanics, materials science, and manufacturing processes to the design of components and complete machines that must meet prescribed functional requirements. Synthesis and analysis of a major machine design project. (F,SP) Kazerouni

**104. Engineering Mechanics II.** (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Engineering 36, 7 or 77, and Mathematics 1A, 1B, or 18A. Statics and dynamics, particle motion and rigid body motion. Laboratory experiments in force and motion. (F,SP) Staff

**C105B. Thermodynamics and Biothermodynamics.** (3) Students will receive no credit for C105B after taking 105. Three hours of lecture and one hour of discussion per week. Prerequisites: Engineering 1, Chemistry 1A, Mathematics 33, Physics 7A, and Engineering 7 or 77, or equivalents. This course introduces the basic principles of thermodynamics and their application to a variety of biological processes and systems. Some coverage of conventional engineering applications is also included. Also listed as Bioengineering C105B. (F,SP) Carey

**106. Fluid Mechanics.** (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 104. This course introduces the fundamentals and techniques of fluid mechanics with the aim of designing and controlling engineering flows. (F,SP) Staff

**107A. Experimentation and Measurement.** (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: 104, 105. Engineering 100. Engineering 190. Co-requisite 109. Methods and procedures for experimental investigation of mechanical engineering phenomena and systems. Experimental design, measurement systems, data acquisition, and data analysis. Modeling, measurement and experimental systems. (F,SP) Staff

**107B. Mechanical Engineering Laboratory.** (3) Six hours of laboratory per week. Prerequisites: 107A. Experimental investigation of engineering systems and phenomena of interest to the engineer. Design and planning of experiments. Analysis of data and reporting of experimental results. (F,SP) Staff

**108. Mechanical Behavior of Engineering Materials.** (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 85. This course covers elastic and plastic deformation under static and dynamic loads. Failure by yielding, fracture, fatigue, wear, and environmental factors are also examined. Topics include: engineering materials, structure-property relationships, elastic deformation and multiaxial loading, plastic deformation and yield criteria, dislocation plasticity and strengthening mechanisms, creep, stress concentration effects, fracture mechanics, and contract stresses. (F,SP) Komvopoulos, Dharan

**109. Heat Transfer.** (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 105 and 106. This course covers transport processes of mass, momentum, and energy from a macroscopic view with emphasis both on understanding why matter behaves as it does and on developing practical problem solving skills. The course is divided into four parts: introduction, conduction, convection, and radiation. (F,SP) Staff

**110. Introduction to Product Development.** (3) Three hours of lecture per week. Prerequisites: 102B, 107A (which may be taken concurrently). The course provides an experience in preliminary project planning of complex and realistic mechanical engineering systems. Design concepts and techniques are introduced, and the student’s design ability is developed in a design or feasibility study chosen to emphasize ingenuity and provide wide coverage of engineering techniques. Innovative design, design optimization and social, economic, and political implications are included. Individual and group oral presentations are made, and participation in conference is required. Staff

**117. Structural Aspects of Biomaterials.** (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Biology 1A, Engineering 45, Civil and Environmental Engineering 130 or 130N or Bioengineering 102, and Engineering 190. This course covers
the structure and mechanical functions of load-bearing tissues and their replacements. Natural and synthetic load-bearing biomaterials for clinical applications are reviewed as well as the properties of biomaterials that host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of tissues are covered in order to develop mathematical models for structural systems to function. Material selection for load-bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology are addressed. Mechanical design for fatigue including topics of fatigue, wear, and fracture are reviewed. Case studies that examine failures of devices are presented. This course includes a teaching/design laboratory component that involves design analysis of medical devices and outreach teaching to the public community. Several problem-based projects are utilized throughout the semester for design analysis. In addition to technical content, this course involves rigorous technical writing assignments, oral communication skill development and teamwork. Also listed as Bioengineering C117. (SP) PrUtt

118. Introduction to Nanotechnology and Nanoscience. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A and Physics 7B. This course introduces students to the field of nanotechnology and nanoscience. The course covers two components: (1) Formal lectures. Students will be provided with formal lectures introducing them to the field of nanotechnology and nanoscience. The material covered includes nanofabrication technology (how one achieves the nanometer length scale, from "bottom up" to "top down" technologies), the interdisciplinary nature of the use of nanotechnology and nanoscience (including areas of chemistry, material science, physics, and molecular biology), examples of nanoscience phenomena (the crossover from bulk to quantum mechanical behavior), and applications (from integrated circuits, quantum computing, MEMS, and bioengineering). (2) Projects. Students are asked to read and present a variety of current journal papers to the class and lead a discussion on the various works. (F,S,P) Lin, Sohn

119. Introduction to MEMS (Microelectromechanical Systems). (3) Three hours of lecture per week. Prerequisites: Electrical Engineering 100, Physics 7B. Fundamentals of microelectromechanical systems (MEMS) design, fabrication of microstructures; surface-micromachining, bulk-micromachining, LIGA, and other micro machining processes; fabrication principles of microstructures and their applications for MEMS; high-aspect-ratio microstructures; scaling issues in the micro scale (heat transfer, fluid mechanics and solid mechanics); device design, analysis, and mask layout. (F) Staff

122. Processing of Materials in Manufacturing. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: C124; Civil and Environmental Engineering 130 or 130N, Fundamentals of manufacturing processes (metal forming, metal cutting, welding, joining, and casting); selection of metals, plastics and other materials relative to the design and choice of manufacturing processes. (SP) Wight

C124. Mechanical Behavior of Engineering Materials. (3) Students will receive no credit after taking 102A or Materials Science and Engineering 113. Three hours of lecture and one hour of discussion per week. Prerequisites: Civil and Environmental Engineering 130 or 130N and Engineering 45. Formerly 102A and Materials Science and Engineering 113. This course covers fundamentals of continuum mechanics under static and dynamic loads. Prediction and prevention of failure due to yielding, fracture, fatigue, wear, and environmental factors are addressed. Design issues pertaining to the structural integrity of load-bearing applications are discussed. Case studies of engineering failures are presented. Topics include: engineering materials, structure-property relationships, materials selection for load-bearing applications, constitutive behavior of polycrystalline and design of plastic components, complex states of stress and strain, elastic deformation and multiaxial loading, plastic deformation and yield criteria, dislocation plasticity and strengthening mechanisms, creep, effects of stress concentrations, fracture, fatigue, and contact stresses. Also listed as Materials Science and Engineering C113. (F,S,P) Dharan, Komvopoulos


134. Design of Microprocessor-Based Mechanical Systems. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Engineering 7 or 77. This course provides preparation for the conceptual design and prototyping of mechanical systems that use microelectronic computer activities, acquire and analyze data, and interact with operators. The architecture of microprocessors is related to problems in mechanical systems through studies of microelectromechanical components, thermal components and a variety of instruments. Laboratory exercises lead through studies of different levels of software. (SP) Kazerouni

140. Combustion Processes. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 105, 106, and 109 (105 and 106 may be taken concurrently). Fundamentals of combustion, flame structure, flame speed, flammability, ignition, stirred reaction, kinetics and nonequilibrium processes, pollutant formation. Application to engines, energy production and fire safety. (F) Fernandez-Pello

146. Energy Conversion Principles. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 105, 106, 109 (105 and 106 may be taken concurrently). Basic principles of heat transfer and their application. Subject areas are the steady-state heat balance, heat sources and sinks, and numerical analysis and synthesis. Linksages, cams, reciprocating engines, gear trains, and flywheels. (SP) Youssefi

151. Advanced Heat Transfer. (3) Three hours of lecture per week. Prerequisites: 105, 106, and 109 (105 and 106 may be taken concurrently). Basic principles of heat transfer and their application. Subject areas are the steady-state heat balance, heat sources and sinks, and numerical analysis and synthesis for conduction, free and forced convection, boiling, condensation and thermal radiation. (SP) Staff

153. Engineering Aerodynamics. (3) Three hours of lecture per week. Prerequisites: 106. Introduction to the lift, drag, and moment of two-dimensional airfoils, and three-dimensional wings, and complete airplane. Calculations of the performance and stability of airplanes in subsonic flight. (F) Savas

164. Marine Statics and Structures. (3) Students will receive no credit for 164 after taking C164/Ocean Engineering C164; 2 units after taking 151. Three hours of lecture per week. Prerequisites: Civil and Environmental Engineering 130 or 130N or consent of instructor. Formerly C164. Terminology and definitions of hull forms, conditions of static equilibrium and stability of floating bodies. Effects of damage on stability. Structural loads and response. Box girder theory. Isotropic and orthotropic plate bending and buckling. (F,S,P) Mansour


166. Fluid Mechanics of Biological Systems. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 105 and 109 (may be taken concurrently). This is a general introduction to biological
fluid mechanics. The course will primarily examine the biological and mechanical aspect of mammalian flow. If time allows, animal, bugs, fish, and environmental flows may also be covered but are not mandatory. The majority of the course focuses on the blood flow in the human body. This class does not presume previous knowledge of anatomy. (F,SP) Savas

167. Microscale Fluid Mechanics. (3) Hours of lecture per week. Prerequisites: 105, 106, 109, Physics 7B or equivalent. Students may be taken concurrently. Formerly Mechanical Engineering 219, C219. Microelectromechanical systems (MEMS). This course covers the topics of mechanical properties of thin films, surface chemistry, surface science, and mass transport in biological systems; organic molecules, cells, biological organs, whole animals. Derivation of mathematical models and discussion of experimental results. Also listed as Bioengineering C212. (SP) Staff

C212. Heat and Mass Transport in Biomedical Engineering. (3) Three hours of lecture per week. Prerequisites: 106 and 109 (106 and 109 may be taken concurrently). Formerly Mechanical Engineering 212. Funtmental biological processes and mass transport in biological systems; organic molecules, cells, biological organs, whole animals. Derivation of mathematical models and discussion of experimental results. Also listed as Bioengineering C212. (SP) Staff

C213. Fluid Mechanics of Biological Systems. (3) Three hours of lecture per week. Prerequisites: 106 or equivalent, or consent of instructor. Fluid mechanical aspects of various physiological systems, the circulatory system, respiratory system, and small blood vessels. Pulsatile and peristaltic flows. Other biofluid mechanical flows: the ear, eye, etc. Instrumentation for fluid measurements in biological systems and for medical diagnosis and applications. Artificial devices for replacement of organs or functions, e.g. blood oxygenators, kidney dialysis machines, artificial hearts/circulatory assist devices. Also listed as Bioengineering C213. (F) Berger

C214. Advanced Tissue Mechanics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: C176, 185, graduate standing or consent of instructor. Knowledge of MATLAB or equivalent. The goal of the course is to provide an understanding of characterizing and understanding the mechanical behavior of load-bearing tissues. A variety of mechanical topics will be introduced, including anisotropic elasticity and failure, cellular solid theory, biphasic theory, and non-linear viscoelasticity. Building from this theoretical basis, we will explore the constitutive behavior of a wide variety of biological tissues. After this course, students should have sufficient background to independently study the mechanical behavior of most biological tissues. Formal discussion section will include a seminar series with external speakers. Also listed as Bioengineering C214. (SP) Staff

C217. Biomimetic Engineering—Engineering from Biology. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering or consent of instructor. Study of nature’s solutions to specific problems with the aim of determining appropriate engineering analogs. Morphology, scaling, and design in organisms applied to engineering structures. Mechanical principles in nature and their application to engineering devices. Mechanical behavior of biological materials is governed by a synergy of structure, with the potential for synthesis into engineered materials. Trade-offs between redundancy and efficiency. Students will work in teams on projects where they will track examples of design problems from biology and determine their potential in specific engineering applications. Also listed as Integrative Biology C217 and Bioengineering C217. (F) Dharan

C218. Introduction to MEMS Design. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing in engineering or science; undergraduates with consent of instructor. Physics, fabrication, and design of micro-electromechanical systems (MEMS). Micro- and nanofabrication processes, including silicon surface and bulk micromachining and non-silicon micromachining. Integration strategies and assembly processes. Microsensor and microactuator devices, and microfluidic systems. Piezoelectric, thermal, magnetic transduction. Electronic position-sensing circuits and electrical and mechanical noise. CAD for MEMS. Design project is required. Also listed as Electrical Engineering C245. (F,SP) Staff

C219. Microelectromechanical systems (MEMS). (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 219. This course is aimed to provide basic understanding of design, fabrication, and testing of microelectromechanical systems (MEMS). Technologies including analyses, design, and manufacturing processes of MEMS will be introduced. The first part of the course emphasizes IC processes, including thin
220. Precision Manufacturing. (3) Three hours of lecture per week. Prerequisites: 101, 102B, or consent of instructor. Introduction to precision engineering for manufacturing. Emphasis on design and performance of machinery for manufacturing. Topics include: machine tool elements and structure, sources of error (thermal, static, dynamic, process related), precision manufacturing processes and machines, and abrasive finishing processes, sensors for process monitoring and control, metrology, actuators, machine design case studies and examples of precision component manufacture. (SP) Dharan

221. High-Tech Product Design and Rapid Manufacturing. (3) Three hours of lecture per week enhanced by a semester-long "hands-on" rapid prototyping project. Prerequisites: 101; Recommended: Basic modeling, IC manufacturing, CAD, C, and Java helpful. This is a "manufacturing survey course" that deals with Internet-based design, rapid prototyping, and a review of manufacturing processes relevant to today's production of consumer electronics or medical products that use electronic components. A balanced view for the "Management of Technology." (F) Wright

222. Advanced Manufacturing Processes. (3) Three hours of lecture per week. Prerequisites: 122 or consent of instructor. This course presents an overview of the most important manufacturing processes, machine tool design, and process issues in quality, production rate, and flexibility of manufacturing. Nontraditional manufacturing processes will be introduced. Topics covered include examples of models of conventional manufacturing (material removal, joining, forming, and deformation), elements of machine tool error and machine tool component design, nontraditional manufacturing processes (laser, water jet, electro-chemical machining), rapid prototyping, and process selection, optimization, and planning issues. This course incorporates a laboratory component in the application of nontraditional manufacturing processes. (SP) Wright

223. Polymer Engineering. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Civil and Environmental Engineering 130 or 130H. A survey of the structure and mechanical properties of advanced engineering polymers. Topics include rubber elasticity, viscoelasticity, mechanical properties, yielding, deformation, and fracture mechanics of polymers. The course will discuss deformation schemes of polymers and long-term performance issues. The class will include polymer applications in bioengineering and medicine. Also listed as Bioengineering C223. (F) Staff

224. Mechanical Behavior of Engineering Materials. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Civil and Environmental Engineering 130 or 130H; Engineering 45. This course covers elastic and plastic deformation under static and dynamic loads. Prediction and prevention of failure by yielding, fracture, fatigue, creep, corrosion, and wear. Basic elasticity and plasticity theories are discussed. (SP) Dharan, Zoldi

225. Deformation and Fracture of Engineering Materials. (3) Three hours of lecture per week. Prerequisites: C224 and 104. This course covers deformation and fracture behavior of engineering materials for both monotonic and cyclic loading conditions. Also listed as Materials Science and Engineering C212. (SP) Ritchie


227. Mechanical Behavior of Composite Materials. (3) Students will receive no credit for 227 after taking 231. This course covers elastic and plastic deformation under static and cyclic loading conditions. Also listed as Electrical Engineering C229. (F) Komvopoulos

228. Computer-Aided, Optimal Mechanical Design. (3) Three hours of lecture per week. Prerequisites: Graduation standing and the equivalent of both 102B and 128. This course will cover the optimal mechanical design of mechanical systems and components. A variety of optimization techniques will be developed, and applied to mechanical systems. The course will be taught on the computer. (SP) Agogino, McMahon

229. Design of Basic Electro-Mechanical Devices. (3) Three hours of lecture per week. Prerequisites: EECS 100, graduation standing or consent of instructor. Fundamental principles of magnetism, electromagnetic devices, circuit theory, and machine design and operation of electro-mechanical devices. Type of device to be used in a particular application and dimensions of parts for the overall design will be discussed. Motors will be linear and rotary actuators, stepper motors, AC motors, and DC brush and brushless motors. A design project is required. (F,SP) Staff

230. Real-Time Applications of Mini- and Micro-Computers. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing in engineering or consent of instructor for advanced undergraduates. Minicomputers and micro-computers, computer engineering, real-time operating systems, microcomputer components in engineering systems. The purpose of this course is to build competence in the engineer- ing use of such systems through lectures stressing small computer structure, programming and output/input operation, and through laboratory work with mini- and micro-computer systems. (F) Staff


233. Advanced Control Systems II. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 232. Linear Quadratic Optimal Control, Modern Control Theory. Linear systems, state space approach. Controllability and observability, LQG optimal control, Kalman filter, Linear Quadratic Gaussian (LQG) control, Loop Transfer Recovery, Adaptive Control and Model Reference Adaptive Systems, Self Tuning Regulators, Repetitive Control, Application to Engineering Systems. (SP) Tomizuka, Horowitz

234. Multivariable Control System Design. (3) Students may not take 234 for credit if they have taken 291C. Three hours of lecture per week. Prerequisites: 232 or EECS 212A, as well as firm foundation in classical control. Formerly 291C. Analysis and synthesis techniques for multivariable systems. Emphasis is on the effect that model uncertainty has on the design process. (SP) Packard, Poliu


238. Advanced Design and Automation. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing in engineering or science and one course in Control. This course will provide students with a solid understanding of smart products and the use of embedded microcomputers in products and machines. The course has two components: (1) Formal lectures. Students receive a set of formal lectures on the design of smart machines and systems that use embedded microcomputers. The materials cover machine components, actuators, sensors, basic electronic devices, embedded micro- processor systems and control, power transfer com- ponents, and mechanical effects. Students will design and construct prototype products that use embedded microcomputers. (F) Kazerooni

240A. Marine Structures I. (3) Students will receive no credit for 240A after taking 242A or Ocean Engineering C242A. Three hours of lecture per week. Prerequisites: Statistics 25 or equivalent. Formerly 240A. This course introduces a probabilistic description of ocean waves and wave loads acting on marine structures. These topics will be followed with an introduction to structural strength and reliability analysis. (F,SP) Mansour

240B. Advanced Marine Structures II. (3) Students will receive no credit for 240B after taking 242B or Ocean Engineering C242B. Three hours of lecture per week. Prerequisites: 240A. Formerly C242B. This course is concerned with the structural response of marine structures to environmental loads. Overall response of the structure, as well as the behavior of its members under lateral and comp- ressive loads, are discussed. (F,SP) Mansour


251. Heat Conduction. (3) Three hours of lecture per week. Prerequisites: 151; Engineering 230A. Analytical and numerical determination of the conduction of heat in solids. (F) Staff

252. Heat Convection. (3) Three hours of lecture per week. Prerequisites: 151, 265A; Engineering 230A. The transport of heat in fluids in motion; free and forced convection in laminar and turbulent flow over surfaces and within ducts. (SP) Graff

253. Thermal Radiation. (3) Three hours of lecture per week. Prerequisites: 151. Thermal radiation properties of gases, liquids, and solids; the calculation of radiant energy transfer. (F) Grigoropolous, Majumdar


255. Combustion. (3) Three hours of lecture per week. Prerequisites: 105, 265A and 265B or consent of instructor. Three hours of lecture and one hour of discussion per week. (F) Staff

256. Advanced Combustion. (3) Three hours of lecture per week. Prerequisites: 262A or consent of instructor. Critical analyses of combustion phenomenon. Conservation relations applied to reacting systems. Reactions are treated by both asymptotic and numerical methods. Real hydrocarbon kinetics are used; where available reduced kinetic mechanisms are introduced. Flame propagation theory and experiments are discussed in detail for both laminar and turbulent flows. (F) Staff

257. Heat Transfer with Phase Change. (3) Three hours of lecture per week. Prerequisites: 151, 254, or consent of instructor. This course introduces advanced statistical thermodynamics, nonequilibrium thermodynamics, and kinetic theory concepts used to analyze thermophysics of microscale systems, and explores applications in which microscale transport plays an important role. (SP) Carey, Majumdar

260A. Advanced Fluid Mechanics I. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 260A or consent of instructor. Develops a working knowledge of fluid principles; basic fluid phenomena, the essential physical mechanism in complex canonical flow problems which leads to simplified yet accurate formulation. Boundary layers, creeping flows, rotational flows, rotating flows. Stability and transition, introduction to turbulence. (SP) Staff

260D. Advanced Fluid Mechanics IV. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 260A and B, or 241A; or consent of instructor. Discrete and continuous elements of compressible flow and boundary layers beyond material in 260A-260B. Time-harmonic elements of free-surface flows. (F,SP) Berger


264. Dynamics and Stability of Engineering Structures. (3) Three hours of lecture per week. Prerequisites: 260A and 260B or consent of instructor. Formerly 260C. A presentation of four related topics in mechanics of structures. The linear stability equations for vibrating beams, waves, rotating flows, and geophysical/astrophysical fluid dynamics. Linear stability of classical, shear, convecting, and rotating flows are reviewed. Weakly non-linear, long wave and boundary layer approximations of linear and numerical studies of sub-critical instabilities of pipe and channel flows are discussed. Rapidly rotating flows are analyzed by asymptotically deriving the quasi-geographic and shallow water equations. Examples of geophysical flows include vortex dynamics in the atmosphere and ocean, jet streams and waves (Rossby, Poincare, inertial, internal gravity and Kelvin). The next fundamental concept of hydrodynamic waves is the stratified, free surface, and compressible flows is discussed and applied to flows with shocks and breaking waves. (F,SP) Staff

265. Geophysical Fluid Mechanics. (3) Three hours of lecture per week. Prerequisites: 265A or equivalent. An introduction to the fluid mechanics and atmospheric motions of the Earth’s interior (mantle and core), Buoyant creeping flow. Rotation inside a sphere. Modes of wave propagation in rotation and stratified flows. (F) Staff

268. Physicochemical Hydrodynamics. (3) Three hours of lecture per week. Prerequisites: A first graduate course in fluid mechanics is recommended. An introduction to the hydrodynamics of capillarity and wetting. Balance laws and short-range forces. Dimensionless numbers, scaling and lubrication approximation. Rayleigh instability. Marangoni effect. The moving contact line. Wetting and short-range forces. The dynamic contact angle. Dewetting. Coating flows. Effect of surfactants and electric fields. Wetting of rough or porous surfaces. Contact angles for evaporation systems. Also listed as Chemical Engineering C268. (F,SP) Staff

273. Oscillations in Linear Systems. (3) Three hours of lecture per week. Prerequisites: 104 and 133. Response of discrete and continuous dynamical systems, damped and undamped, to harmonic and general time-dependent loading. Convolution integrals and Fourier and Laplace Transform methods. Lagrangian and Hamiltonian formalisms. Orthogonality, generalized coordinates, nonreciprocal and degenerate systems; Rayleigh quotient. (F) Ma


275. Advanced Dynamics. (3) Three hours of lecture per week. Prerequisites: 175. Review of Lagrangian dynamics. Legendre transformations, Hamilton’s equations, Cyclic coordinates, Canonical transformations, Hamilton-Jacobi theory, integrability. Dynamics of asymmetric systems. Approximation theory. Current topics in analytical mechanics. (F) Staff

277. Oscillations in Nonlinear Systems. (3) Three hours of lecture per week. Prerequisites: 175. Oscillations in nonlinear systems having one or two degrees of freedom. Qualitative and quantitative methods: graphical, analytical, numerical, and asymptotic methods. Self-excited oscillations, limit cycles, and domains of attraction. (F,SP) Szeri

280A. Introduction to the Finite Element Method. (3) Three hours of lecture and one hour of discussion or computer laboratory per week. Prerequisites: Methods of tensor calculus and calculus and differential geometry. The tensor concept and the calculus of tensors, the Riemannian space and its properties, Riemannian and Euclidean spaces. Geometry of a surface, formulas of Weingarten, and equations of Gauss and Codazzi. (F,SP)

281. Methods of Tensor Calculus and Differential Geometry. (3) Three hours of lecture per week. Prerequisites: Mathematics 53 and 54. Methods of tensor calculus and classical differential geometry. The tensor concept and the calculus of tensors, the Riemannian space and its properties, Riemannian and Euclidean spaces. Geometry of a surface, formulas of Weingarten, and equations of Gauss and Codazzi. (F,SP) Staff

282. Theory of Elasticity. (3) Three hours of lecture per week. Prerequisites: 185. Fundamentals and general theorems of the linear theory of elasticity (in three dimensions) and the formulation of static and dynamic boundary value problems. Application to torsion, flexure, and two-dimensional problems, Compressible, generalized plane stress, and bending of plates. Representation of basic field equations in terms of displacement potentials and stress functions. Some basic three-dimensional solutions. (SP) Bogy, Steigmann

283. Wave Propagation in Elastic Media. (3) Three hours of lecture per week. Prerequisites: 185. Propagation of mechanical disturbances in unbounded and bounded media. Surface waves, wave reflection and transmission at interfaces and boundaries. Stress waves to periodic waves. One additional topic may vary with instructor. (F) Bogy


285A. Foundations of the Theory of Continuous Media. (3) Three hours of lecture per week. Prerequisites: 185. Formerly 285A. A general development of the thermodynamics of deformable media, entropy production, and related entropy inequalities. Thermome-
channical response of dissipative media, including those for viscous fluids and nonlinear elastic solids. A discussion of invariance, internal constraints, material symmetry, and other special topics. (F,S) Casey

285B. Surfaces of Discontinuity and Inhomogeneous Media. (3) Graduate Course. (3) Three hours of lecture per week. Prerequisites: 185. Finitely deforming thermo-mechanical media. Moving surfaces of discontinuity. Shock waves and acceleration waves in one dimension. The Eshelby tensor and Eshelbyian mechanics. Fracture. Microstructurally continuous. (F,S) Casey

285C. Electrodynamics of Continuous Media. (3) Three hours of lecture per week. Prerequisites: A first course in continuum mechanics (such as 231 or Civil Engineering 231). Formerly 284B. This course presents the fundamentals of electromagnetic interactions in deformable continuous media. It develops the background necessary to understand various modern technologies involving MEMS devices, sensors and actuators, plasmas, and a wide range of additional phenomena. The emphasis of this course is on fundamentals, beginning with Maxwell's equations in vacuum, the other relations and their extension to electromagnetic interactions in materials. The treatment is general within the limits of nonrelativistic physics and accommodates coupling with mechanical systems. The topics discussed are developed at a general level including the effects of finite deformations. Various linear models, which are especially useful in applications, are developed through specific examples. The course will be especially of interest to students in engineering, physics, and applied mathematics. (F,S) Steinmann

286. Theory of Plasticity. (3) Three hours of lecture per week. Prerequisites: 185. Formulation of the theory of plasticity relative to loading surfaces in both strain space and stress space and associated loading criteria. Nonlinear constitutive equations for finitely deformed elastic-plastic materials. Discussion of strain-hardening and special cases. Applications. (F,S) Casey, Papanastasiou

287. Multiscale Modeling and Design of New Materials. (3) Three hours of lecture per week. Prerequisites: 185 or equivalent. This course focuses on methods for the modeling, analysis, numerical simulation, and design of nanoscale and microstructured materials, with a central theme being the determination of relationships between the microstructure and the macroscopic response or "macroscale property." The course is intended for graduate students interested in the interface between materials science and mechanical engineering. Emphasis will be on understanding the role of microstructures in limiting or enhancing properties. (F,S) Johnson, Steinmann


290D. Solid Modeling. (3) Three hours of lecture per week. Prerequisites: Computer Science 61B or equivalent, linear algebra; Computer Science 184 recommended. This course is a survey of solid modeling research. Representations and algorithms for 3D solid geometry. Applications in design, analysis, planning, and manufacturing of mechanical parts, including CAD/CAM, reverse engineering, and design of complex mold-making, and rapid prototyping. (SP) McMains


290H. Green Product Development: Design for Sustainability. (3) Three hours of lecture per week. Prerequisites: Graduate standing in Engineering or Information, or consent of instructor. The focus of the course is management of innovation processes for sustainable products, from collectible needs data, prioritizing that data, developing a product specification, sketching and building product prototypes, and interacting with the customer/community during product development. The course is intended as a very hands-on experience in the "green" product development process. The course will be a Management of Technology course offered jointly with the College of Engineering and the College of Business Administration. In addition, it will also receive credit towards the new Certificate on Engineering Sustainability and Environmental Management program. We aim to have half MBA students and half engineers (which is typical with a few other students, such as from the School of Information) in the class. The instructors will facilitate students to form mixed disciplinary teams for the development of their "green" products. (F,S) Agogino, Beakmann

290J. Predictive Control for Hybrid and Hybrid Systems. (3) Three hours of lecture per week. Prerequisites: 232. Advanced optimization, polyhedral manipulation, and multiparametric programming. Invariant set theory. Analysis and design of constrained predictive controllers for linear systems. Theoretical and computational methods. (F) Boorli

290L. Introduction to Nano-Biology. (3) Three hours of lecture and one hour of discussion per week. Prerequisite: 185. This course introduces students in Mechanical Engineering to the nascent field of Nano-Biology. The course is comprised of both formal lectures and projects. Lectures will include an introduction to both molecular biology and general engineering topics. Nucleic acid structure and function, DNA, gene regulation, etc. and nanotechnology ("bottom up" and "top down" nanotechnologies), an overview of current instrumentation in both fields, and a recent integration of molecular biology with nanotechnology for sensing or labeling purposes, elucidating information on cells, etc., and an introduction to Systems Biology (design principles of biological circuits). Students will read and present a variety of current journal papers to the class and lead a discussion on the various works. (F,S) Sohn

290M. Expert Systems in Mechanical Engineering. (3) Three hours of lecture per week. Prerequisites: 107A, 108B or equivalent. Introduction to artificial intelligence and expert systems, focusing on mechanical engineering applications. Fundamentals of analytic design, probability theory, failure analysis, risk assessment, and Bayesian and logical inference. Applications to expert systems in probabilistic design and failure diagnostics. Use of automated inference diagrams to codify expert knowledge and to evaluate optimal design decisions. (SP) Agogino

290N. System Identification. (3) Three hours of lecture per week. Prerequisites: 232, Electrical Engineering and Computer Sciences 221A or consent of instructor. This course is intended to provide a comprehensive treatment of both classical system identification and recent work in control-oriented system identification. Numerical, practical, and theoretical aspects will be covered. Topics treated include time and frequency domain methods, generalized parametric estimation, identification of structured nonlinear systems, and self-tuning controllers. Following all relevant background, the course will proceed to some of the most recent work in using the approaches to model real-world systems. (F) Agogino

290Q. Dynamic Control of Robotic Manipulators. (3) Three hours of lecture per week for five weeks, one hour of lecture per week for 10 weeks, four hours of laboratory per week for full term. Prerequisites: 232, 232, or consent of instructor. Dynamic and kinematic analysis of robots, control laws (position, velocity, force and vision). Actuators and power transmission lines. Direct drive and indirect drive. Point to point control. Straight and curved path following. Industrial practice in servo control. Application of optimal linear quadratic control, preview control, nonlinear control, and direct/indirect adaptive controls. Force control and compliance control. Collaborative and Utilization of dynamic controls (SP) Horowitz, Kazerooni

290R. Topics in Manufacturing. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics in manufacturing research. Topics vary from year to year. (F,S) Dornfeld, McMains, Wright

C290S. Hybrid Systems and Intelligent Control. (3) Three hours of lecture per week. Formerly 291E. Analysis of hybrid systems formed by the interaction of continuous time dynamics and discrete-event controllers. Discrete-event controllers. Discrete-event systems. Applications to robotics and Intelligent Vehicle and Highway Systems (IVHS). Also listed as Electrical Engineering C291E. Staff

290T. Plasmonic Materials. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced topics in plasmonic materials. The electromagnetic responses of those artificially constructed materials will be discussed. Of particular interest will be the dynamics of nonlinearly elastic rods and strings. (SP) O'Reilly

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
phenomena associated with the negative permittivity and permeability and the left-handed propagation will be presented. Methods of design, fabrication, and characterization of plasmonic materials will be discussed. (F.S.P) Zhang

C290X. Advanced Technical Communication: Proposals, Patents, and Presentations. (3) Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing, and student will have passed their Ph.D. qualifying examination. This course will help the advanced Ph.D. student further develop critically important technical communication skills. The course will cover a variety of topics, including the preparation of technical papers, reports, patents, proposals, business plans, and oral presentations. One key concept will be the ability to effectively and clearly present ideas through critical thinking regarding objectives and context. Examples will be drawn primarily from health care and bioengineering multidisciplinary applications. Also listed as Bioengineering C290D. (SP) Keaveny, Pruitt

290Z. Topics in Control, Modeling and Optimization. (3) Three hours of lecture per week. Prerequisites: 232 and 233. Advanced topics in control, modeling and optimization research with extensive illustrative applications to diverse areas in mechanical engineering systems and mechatronics. Topics will vary from year to year and will be announced at the beginning of each semester that the course is offered. Theoretical issues covered in the course include topics such as iterative learning control, control over networks, and modeling for controls. The illustrative applications will be drawn from such topics as mechatronics for improving the quality of life among others. (F.S.P) Staff

298. Group Studies, Seminars, or Group Research. (1-8) Course may be repeated for credit. Sections 1-49 to be graded on a satisfactory/unsatisfactory basis. Sections 50 and above to be graded on a letter-grade basis. Advanced standing students may enroll in special seminars on topics to be selected each year. Informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation. (F.S.P) Staff

C298A. Topics in Fluid Mechanics. (1,2) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Lectures on special topics which will be announced at the beginning of each semester that the course is offered. Topics may include transport and mixing, geophysical fluid dynamics, bio-fluid dynamics, oceanography, free surface flows, non-Newtonian fluid mechanics, among other possibilities. Also listed as Environ Sci, Policy, and Management C291, Physics C290I, Mathematics C290C, Chemical Engineering C295M, Civil and Environmental Engineering C290X, and Bioengineering C290C. (F.S.P) Staff

299. Individual Study or Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing, in engineering, physics, or mathematics. Investigations of advanced problems in mechanical engineering. (F.S.P) Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing, in engineering, physics, or mathematics. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees). (F.S.P) Staff

Professional Courses

301. Teaching of Mechanical Engineering at the University Level. (1-6) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Weekly seminars and discussions on effective teaching methods, educational objectives, theories of learning, The lecture and alternative approaches. Use of media resources. Student evaluation. Laboratory instruction. Curricula in mechanical engineering. (SP) Staff

Media Studies

(Commerce of Letters and Science)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 301 Campbell, (510) 642-2383 Es.berkeley.edu/ugius/media.studies

Faculty Advisory Committee

Bruce Cain (Political Science) Paul Duguid (School of Information) John Ellwood (Public Policy) Thomas Goldstein (Journalism and Media Studies) David Henkin (History) Neil Henry (Journalism) Thomas Leonardi (Politics and Public Policy) Jean P. Retzinger, Ph.D. (Media Studies) Laura Stoker (Political Science)

Faculty Adviser: Ms. Retzinger

Student Affairs Officer: Mr. Gaetjens

Media Studies Program

The major group in media studies is administered by the Division of Undergraduate and Interdisciplinary Studies. It applies a range of disciplines in the social sciences and humanities to the understanding of contemporary mass media, their structure, history, content, consequences, and policy implications. The emphasis in the Berkeley program is not on media production but rather on the central role that media play in modern society, with special emphasis on political and cultural life.

Declaring the Major

Students planning to declare a major in media studies are advised to contact the student affairs officer as early as possible in planning their academic program. Applications are accepted during the 15th week of each term. Students who wish to declare the major in media studies are advised to contact the major advisor on arrival in order to have transfer prerequisites approved. Transfers may need assistance in adding Media Studies 10 to their schedules.

Honors Program

To be admitted to the honors program, a student must meet all the above criteria but wish to declare media studies at the University. Transfers may need assistance in adding Media Studies 10 to their schedules. New transfers should see the major advisor on arrival in order to have transfer prerequisites approved. Transfers may need assistance in adding Media Studies 10 to their schedules.

Transfer Students

Transfer students may complete Media Studies 10 at Berkeley, but are urged to complete other major prerequisite courses before arriving on campus. New transfers should see the major advisor on arrival in order to have transfer prerequisites approved. Transfers may need assistance in adding Media Studies 10 to their schedules.

Requirements for Graduation

Note: These requirements are in addition to the prerequisites for admission to the major. At least 30 upper division units distributed over the following three areas:

(a) The following four core courses in media studies:

- Media Studies 101, 102, C103 and any one from the following list: Media Studies 104A, 104B, or C104C

(b) One of the following methods courses: Anthropology 190A; Media Studies 130; Political Science 3 or 132A-132B; Psychology 101; Sociology 5 or 105.

(c) Four courses from the following list: African American Studies 142A, 142B; American Studies 112A, 112B, C172; Anthropology 138A, 139, 144, 149A, 149B, 149C, 149D; English 173, 176; Film 160; Journalism 180; Linguistics 150; Media Studies 160, 170, 180, 190; Political Science 106A, 111A, 161, 164A; Psychology 124, 160; Sociology 110, 140, 150, 156, 160, 170, UGBA 106, 165.

Note: All requirements for graduation in the major must be taken for a letter grade. Any substitutions must be approved by the major adviser.

Applications and instructions regarding the admission and appeal process may be obtained from the Media Studies office in 343 Campbell Hall.
24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/fail basis. Formerly Mass Communications 24. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore and develop their interests under faculty supervision. Freshmen seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Steven Bottelen

39. Freshman/Sophomore Seminar. (2) Course may be repeated for credit as topic varies. One hour of lecture per week per unit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/fail basis. Formerly Mass Communications 39. The Freshman/Sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments and topics. At least one hour of seminar per week per unit for five weeks. Two hours of seminar per week per unit for 10 weeks. Three hours of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Staff

84. Sophomore Seminar. (1.2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for one semester or 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Formerly Mass Communications 24. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students. Students gain an understanding of media images, inviting students to study such questions as “why people think what they think about the news.” These seminars vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

101. Visual Communications. (4) Course may be repeated for credit as topic varies. Three hours of lecture and two hours of discussion per week. Prerequisites: Media Studies major or consent of instructor. Formerly Mass Communications 101. This course aims to promote a critical understanding of visual culture from a critical theory perspective. It is designed to foster a critical understanding of contemporary visual culture and to raise questions about its influence on our individual and collective lives. The topics vary from week to week, covering a wide range of visual media. The course will be co-taught with another faculty member. (F,SP) Robert Alter, Ph.D.

120. International Media. (4) Course may be repeated for credit as topic varies. Four hours of lecture per week. Prerequisites: Media Studies major or consent of instructor. Formerly Mass Communications 120. Case studies of the foreign mass media. Focus may be on the press and publishing, broadcasting, documentaries, or new media. Possible topics: Pacific Rim press; mass media in China; Israel and Palestinian media; etc. (F,SP) Staff

170. Cultural History of Advertising. (4) Course may be repeated for credit as topic varies. Four hours of lecture per week. Prerequisites: Media Studies major or consent of instructor. Formerly Mass Communications 170. Introduction to the history of advertising and the roots of consumer culture in the United States. Presents contrasting approaches to the study of advertising and the analysis of advertising themes and images. (F) Staff

180. Television Studies. (4) Course may be repeated for credit as topic varies. Four hours of lecture per week. Prerequisites: Media Studies major or consent of instructor. Formerly Mass Communications 180. This course examines contemporary approaches to the study of television, investigating television’s social, political, commercial, and cultural dimensions. Readings and assignments require students to apply critical perspectives to television programming and to the analysis of individual television texts. (F) Staff

190. Special Topics in Media Studies. (4) Course may be repeated for credit. Four hours of seminar per week. Prerequisites: Media Studies major or consent of instructor. Formerly Mass Communications 190. Normally open only to media studies majors who have already completed their requirements in the major. Advanced study in mass communications with topics to be announced each semester. (F,SP) Staff

195. Honors Colloquium. (3) Three hours of seminar per week. Prerequisites: Media Studies major. Formerly Mass Communications H195. Under the supervision of the instructor, students will work toward preparing scholarly theses in the field, basing their work on theoretical considerations and, where applicable, collecting and analyzing empirical data. (SP) Staff

C103. Understanding Journalism. (4) Four hours of lecture per week. Prerequisites: Media Studies major or consent of instructor. In this course, students learn that understanding the media is so important to a healthy, working democracy. Journalism is rapidly changing. The class will give a context to those changes and provide an overview of contemporary journalistic institutions. Students will examine how news is made, who decides what news is, who makes it, who profits by it, and what rules guide how reporters and editors work. Central issues affecting journalism, such as bias and professionalism, will be discussed. (F,SP) Staff

C104. History of Information. (3) Three hours of lecture per week. Prerequisites: Upper level undergraduate. This course explores the history of information and associated technologies, uncovering why we think of ours as “the information age.” We will explore the historical underpinnings of the First Amendment guarantee of press freedom, with particular emphasis on the practical implications of major Supreme Court decisions. The focus will be on the changing obligations of the print and broadcast media with regard to libel, privacy, prior restraint, fair trial/free press, newsgathering, and access to information. (SP) Staff

C196W. Special Field Research. (10.5) Course may be repeated for credit. Must be taken on a pass/fail basis. Prerequisites: Media Studies major, with at least junior standing. Formerly Mass Communications 196. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP) Staff

**Medieval Studies (College of Letters and Science)**

Program: CASMA, 7233 Dwinnell Hall, (510) 642-4218 Berkeley/dept/medieval

Director: Steven Justice, Ph.D.

Graduate Advisers: Elaine C. Tannen, Ph.D., and Steven Justice, Ph.D.

Professors

Robert Alter, Ph.D. (Near Eastern Studies and Comparative Literature)
Albert Russell Ascoli, Ph.D. (Italian Studies)
Susanna Elm, Ph.D. (History and Religious Studies)
Charles B. Fauthauer, Ph.D. (Spanish and Portuguese)
David Hutt, Ph.D. (French)
Geoffrey Kozicki, Ph.D. (History)
Niklaus Largier, Ph.D. (German)
John Lindow, Ph.D. (Scandinavian)
Maria Mayroudi, Ph.D. (History)
Laurent Mayali, Licence en Lettres MA, Docteur d’Etat en Droit (Law)
Karen O’Brien O’Keefe, Ph.D. (English)
Loren Partridge, Ph.D. (Art History and Italian Studies)
Immengard Rauch, Ph.D. (German)
Pamela Mason, Ph.D. (German and Dutch Studies)
Elaine C. Tannen, Ph.D. (German)
David H. Wright, Ph.D. (Art History)
Thomas Brady (Emeritus), Ph.D.
Carol J. Clever (Emerita), Ph.D.
Louise George Clubb (Emerita), Ph.D.
Joseph J. Duggan (Emeritus), Ph.D.
Mary Kay Duggan (Emerita), Ph.D.
Gerd Hillen (Emeritus), Ph.D.
Leonard H. Johnson (Emeritus), Ph.D.
Anne Middleton (Emerita), Ph.D.
James T. Monroe (Emeritus), Ph.D.
Charles E. Murgia (Emeritus), Ph.D.
Alan Nelson (Emeritus), Ph.D.
Johan F. Sappen (Emeritus), Ph.D.
Randolph Starm (Emeritus), Ph.D.
Frederic T. Taubach (Emeritus), Ph.D.

Associate Professors

Steven Botteller, Ph.D. (Italian Studies)
Gretchen Holland, Ph.D. (History and Religious Studies)
Steven Justice, Ph.D. (English)
Daniel F. Melia, Ph.D. (Rhetoric and Celtic Studies)
Jennifer Miller, Ph.D. (History and Religious Studies)
Maureen Miller, Ph.D. (History)
Mario Navevate, Ph.D. (Italian Studies and Comparative Literature)
Maura Nolan (English)
Jesus Rodriguez-Velasco (Spanish and Portuguese)
Ojas Kratins (Emeritus), Ph.D.

Assistant Professors

Frank Bezner, Ph.D. (Classics)
Emily Thornton-Rice, Ph.D. (Classics)

Lecturers

Kathryn Klar, Ph.D. (Celtic Studies)
Annalise Rehjon, Ph.D. (Celtic Studies)
The Program in Medieval Studies

The Medieval Studies Program at Berkeley is an interdisciplinary group that coordinates and sponsors lecture courses, seminar courses, colloquia, publications, study trips, and other activities that have as their subject the medieval period. It is housed in the Department of Medieval Studies (MSS) and is supported by the Graduate Theological Union, the School of Law, and the Graduate Group in Microbiology. The Program is intended for students whose interests lie in the medieval period. The core course, Critical Thinking in Medieval Studies, addresses the following areas: biochemistry, physiology, and cell biology. Students gain a breadth of understanding that allows each student to pursue specialized interests.

Undergraduate Program

There is no undergraduate major. Students whose interests lie in the medieval period should consider setting up an individual major (for requirements see Earning Your Degree: A Guide for Students in the College of Letters and Science). A proposal for an undergraduate minor is pending. If approved, it will be announced on the Department of Medieval Studies web site and in the online General Catalog.

Curriculum

The program offers some of its own courses. These include Medieval Studies 200, the team taught graduate seminar on medieval Latin, paleography, and manuscript studies. In addition, students are urged to consult the medieval offerings in the departments of Art History, Celtic Studies, Classics, Comparative Literature, Dramatic Art, English, French, German, History, Italian Studies, Linguistics, Music, Near Eastern Studies, Philosophy, Religious Studies, Scandinavian Studies, Slavic, and Spanish and Portuguese, as well as in the School of Law and the Graduate Theological Union. An updated list of such offerings is posted each semester on the Department of Medieval Studies web site.

Upper Division Courses

150. Studies in Medieval Culture. (2-4) Course may be repeated for credit. One hour of lecture per week per unit. Normally three hours of lecture per week for 15 weeks. In the event that the instructor is in residence for fewer than 15 weeks, the course may be offered for either 2 or 3 units of credit, in proportion to the number of actual contact hours. Course may be repeated for credit.Normally taught by the Visiting Distinguished Professor of Medieval Studies. An interdisciplinary exploration of Medieval Culture, focusing on an area of the instructor's expertise. Specific topic varies with instructor. (F,SP)

Graduate Courses

200. Introduction to Research Materials and Methods. (2) Two hours of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. Basic materials and resources in fields represented in the Medieval Studies program, and in some subjects involving exploration of more than one discipline (e.g., literature, paleography). Emphasis on research aids and critical evaluation of their use. Staff

205. Medieval MSS as Primary Sources. (2) Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This course explores the use of medieval manuscripts as primary sources for scholarship in a variety of disciplines (including literary studies, art history, music, intellectual history, social history, and canon law). After reviewing the fundamentals of paleography and codicology, students will compare various manuscripts using digitized images from special collections, including the Bancroft Library of UC Berkeley and the Special Collections Library of the Graduate Theological Union. Members from both those institutions will collaborate in teaching the course using distance learning technology. (F,SP)

250. Seminar in Medieval Culture. (2-4) Course may be repeated for credit. Course may be taken for less than 4 units on a satisfactory/unsatisfactory basis with consent of instructor. Three hours of seminar per week. Prerequisites: Graduate standing. Taught by the Distinguished Visiting Professor of Medieval Studies on a topic related to his or her specialty. In the event that the instructor is in residence for fewer than 15 weeks, the course will be offered for either 2 or 3 units of credit, in proportion to the number of actual contact hours. (SP)

Microbiology

(graduate course, offered in the College of Letters and Science, core course, and additional special-topic courses and seminars in areas of faculty specialties. The core course, Critical Thinking in Microbiology, addresses the following areas: biochemistry, physiology, and cell biology. Students gain a breadth of understanding that allows each student to pursue specialized interests. Students gain a breadth of understanding that allows each student to pursue specialized interests.

The Joint Ph.D. Degree

Students whose home department is History will have both a home department and training in the core disciplines of medieval studies. The joint Ph.D. degree is conferred upon students who have completed the requirements of both the Ph.D. degree at Berkeley and those of the Ph.D. in Medieval Studies. Students admitted to the Graduate Group in Medieval Studies are expected to have a background in one or more of the following disciplines: history, art history, Celtic Studies, Classics, Comparative Literature, Dramatic Art, English, French, German, History, Italian Studies, Linguistics, Music, Near Eastern Studies, Philosophy, Religious Studies, Scandinavian Studies, Slavic, and Spanish and Portuguese, as well as in the School of Law and the Graduate Theological Union.

The Ph.D. Qualifying Examination

A representative of the Department of Medieval Studies must serve on the Ph.D. oral examination committee. Students admitted to the Graduate Group in Medieval Studies must present in the Ph.D. qualifying examination. A representative of the Department of Medieval Studies must serve on the Ph.D. oral examination committee.

Graduate Program in Microbiology

The Graduate Program in Microbiology is composed of 40 faculty from diverse departments, colleges, and schools (Plant and Microbial Biology; Molecular and Cell Biology; Public Health; Civil and Environmental Engineering; Chemical Engineering; Environmental Science, Policy, and Management; Nutritional Science and Toxicology; Optometry; and Integrative Biology) and is administered by the Department of Plant and Microbial Biology. The degree awarded is the Ph.D. in Microbiology. Students in the program have access to diverse disciplines through an integrated program of study that allows each student to pursue specialized interests.

The Graduate Program in Microbiology has research interests in four broad areas: ecology and evolution, genomics, physiology, and cell biology. Students in the program have access to diverse disciplines through an integrated program of study that allows each student to pursue specialized interests.

Admissions

Students admitted to the Graduate Program in Microbiology are expected to demonstrate academic excellence and potential for independent scientific research and to have satisfied, or satisfy through additional coursework, the curriculum required of an undergraduate major in microbial biology. Students are expected to have a background in chemistry, physics, mathematics, and biology. An admissions committee composed of three to five faculty members and one graduate student will review applications and make recommendations to the full faculty on admissions matters. Recommendations for admission will be based on grades in university-level undergraduate and graduate courses, letters of recommendation, written statements of academic and professional goals, and other evidence of academic accomplishment. Scores on standardized tests, such as the Graduate Record Examination, are required of all applicants. Students seeking detailed information are encouraged to contact the Graduate Program in Microbiology.
information about matters such as admission and curriculum should contact the student affairs officer or the graduate adviser.

### Middle Eastern Studies (College of Letters and Science)

**Group Major Office:** International and Area Studies, 101 Stephens Hall, iastp@berkeley.edu, (510) 642-4466

**Chair and Major Adviser:** Nezar AlSayyad

**Coordinating Adviser:** Emily Gottreich

**Faculty Advisers**

- Hamid Algar (Near Eastern Studies)
- Nezar AlSayyad (Architecture)
- Hatem Bazian (Ethnic Studies)
- Daniel Boyarin (Near Eastern Studies)
- Hassiba Doumi (History)
- Samae Esmair (Rhetoric)
- Mia Fuller (Italian)
- Emily Gottreich (Center for Middle Eastern Studies)
- Laura Nader (Anthropology)
- Stefania Pandolfo (Anthropology)
- Nezar AlSayyad (Architecture)
- Cihan Tugal (Sociology)

### Program Overview

Since 1981, the interdisciplinary major in Middle Eastern Studies (MES) has provided Berkeley students with the opportunity to study a region of great historical and cultural importance whose political, economic, and social development is closely linked to that of our own society. The MES major covers the Arab world, Turkey, Iran, and Israel, intertwining history and culture, geography, politics and economics, with an emphasis on the modern and contemporary Middle East. Its broad and balanced program of study draws on a wide variety of Middle-East-related courses offered by more than 20 different departments and schools in the University. Students in the MES major also learn at least one of the major Middle Eastern languages of today: Arabic, Hebrew, Persian, or Turkish. MES students may have gone on to work in industry and government, both in the United States and abroad. About half pursue graduate studies; many then go on to academic or professional careers.

The MES major falls under the academic supervision of the Center for Middle Eastern Studies. The CMES organizes public lectures, publishes a newsletter, maintains a small library, and promotes the study of the ancient Near East. Students interested in the MES major are encouraged to utilize the Center’s many resources.

- Approximately half pursue graduate studies; many then go on to work in industry and government, both in the United States and abroad. About half pursue graduate studies; many then go on to academic or professional careers.

The MES major, under the academic supervision of the Center for Middle Eastern Studies, is a four-course interdisciplinary major. Students may complete a four-course concentration requirement in which they pursue advanced study of a selected topic in Middle Eastern studies following a particular disciplinary approach.

### Upper Division Requirements

- Nine required upper-division courses, totaling no fewer than 30 units. They consist of three core courses; four disciplinary concentration courses; a method course; and a four-course interdisciplinary major.

- Note: With the exception of IASTP/MES courses, no more than three courses may be taken from the same department.

### Core Courses (3 courses)

The core courses are intended to provide a broad introduction to the Middle East, encompassing geography and ethnography, history and cultures, and current political, economic and social developments. To satisfy these requirements, students must take three core courses from this list. There are three courses must be taken in three different departments. A list of currently approved core courses may be found in the MES Handbook.

### Disciplinary Concentration Requirement

In addition to the core courses, MES students must complete a four-course disciplinary concentration requirement in which they pursue advanced study of a selected topic in Middle Eastern studies following a particular disciplinary approach. Topics may focus on a specific region or a thematic problem and may relate to religious and cultural studies, history, contemporary development and social and urbanization, or the impact of imperialism and colonialism on the Middle East, among other topics. The concentration must be designed in consultation with the MES coordinating faculty adviser. Courses used to fulfill the concentration requirement must be approved by an MES faculty adviser in the IASTP office. In order to ensure disciplinary depth, at least two of the four courses taken fulfill the concentration requirement must be taken from the same department. The remaining two must be thematically related to the selected topic. Students may choose their concentration courses from the list of approved courses available at the MES website or on the University’s website. Courses included as at least 50% Middle East-related in the "Courses in Middle Eastern Studies" list available at the MES each semester and posted on its web site at cmes.berkeley.edu/students/ME_Courses.asp.

### Methods Requirement

Methods and Scope of Research in MES (MES 102) is offered each fall. It provides an introduction to interdisciplinary research strategies for the collection, interpretation, and analysis of data from Middle Eastern studies. The semester’s readings and assignments are devoted to two parallel activities: identifying and analyzing different scholarly approaches to selecting and preparing a research topic, including a prospectus on individual topics, the writing of which will take place in MES 190 or MES 195 under the supervision of an appropriate faculty adviser.
Minor in Middle Eastern Studies

The minor in Middle Eastern studies is designed to introduce students to the area studies of the Middle East, understood as comprising the Arab world, Turkey, Iran, and Israel through social science and humanities courses. Students interested in emphasizing Middle Eastern archaeology and/ or ancient civilizations should investigate minors in the Department of Near Eastern Studies. The MES minor is open to all undergraduates with the exception of MES majors. Minor applications must be submitted no later than the last day of instruction of the semester immediately preceding the fall semester.

MES Minor Course Requirements. (1) One introductory lower-division course from the following: MES 102, 103, 120. History 1. Five upper-division Middle East-related courses selected from the list of core courses. Any substitutions must be pre-approved by the MES coordinating faculty adviser.

The five upper division courses must be taken at least 3.6 in courses for the major and 3.5 in all work completed at UC Berkeley. Eligible students are required to submit a typed copy of the thesis to the Center for Middle Eastern Studies. MES 190 must be taken for a letter grade.

Note: Students who complete the Senior Honors Thesis sequence, MES H195 automatically fulfill the Senior Thesis requirement.

(4)b) Senior Honors Program (optional): MES H195 (4 units). Senior students with a GPA of at least 3.6 in courses for the major and 3.5 in all work completed at UC Berkeley are eligible to participate in the honors program. The program consists of a two-semester sequence: MES 102 and H195. MES 102 is a research methods course in which students determine a thesis topic, review the relevant secondary literature, identify primary source materials, and prepare a substantive proposal. (4)(b) MES 102 and H195 is offered by faculty members in departments all across Berkeley. A sampling of such courses may be found in the MES Handbook.

In special cases, the MES coordinating faculty adviser will allow students to apply such courses toward the concentration requirement provided that the course is listed as at least upper-division Middle East-related and that a research paper or other work done for the course focuses on the interdisciplinary concentration topic. Pre-approval and a course substitution form signed by the coordinating faculty adviser are required.

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Military Officers’ Education Program (ROTC)

(Special Studies)

Offices: See following listings for Aerospace Studies, Military Science, and Naval Sciences

military.berkeley.edu

Chair, Advisory Committee on ROTC:
Prof. Philip T. Spieth

Adjunct Professors
David Fee, M.A., Lieutenant Colonel, U.S. Army
Paul A. Laird, M.S., Captain, U.S. Navy
Brian E. Stone, M.S., Lieutenant Colonel, U.S. Air Force

Adjunct Associate Professor
John Sorenson, M.A., Lieutenant Colonel, U.S. Marine Corps

Adjunct Assistant Professors
Daeheun Gillespie, B.S., Lieutenant, U.S. Navy
Amber Henson, M.S., Captain, U.S. Air Force
Jason Valadez, M.S., M.L.S., M.A., Lieutenant, U.S. Navy

Program Overview
The Military Affairs Program, within the Division of Undergraduate and Interdisciplinary Studies (UGIS), comprises the three distinct military officers’ commissioning programs: Air Force ROTC, Army ROTC, and Naval ROTC. The purpose of the program is to integrate the educational offerings of the separate military services into the regular University curriculum. In performing academic functions, the Military Affairs Unit operates the same as any other program within UGIS. Its military members, though nominated by the three military services and subject to the same selection process as other Berkeley faculty members, and the Academic Senate’s Committee on Courses must approve its curriculum. Military Affairs courses are open to all Berkeley students as well as to students from other East Bay colleges under cross-enrollment agreements or through UC Berkeley Extension.

Students interested in the Military Officers Education Program should go to military.berkeley.edu/about.html or consult the program advisors in the appropriate unit:

Department of Military Sciences: (510) 642-3374
Department of Naval Sciences: (510) 642-3551
Department of Aerospace Studies: (510) 642-3572

Military Affairs

Lower Division Courses
1. Military Physical Fitness and Nutrition. (1) Three hours of physical training per week. Prerequisites: Consent of instructor. This course teaches the fundamentals of physical fitness and nutrition employed by the U.S. military to condition ROTC cadets for the physical demands they will face as military officers. The course includes vigorous physical training under the supervision of military officers and noncommissioned officers. The goal of this course is to not only enhance one’s level of physical fitness but to develop leadership qualities in the conduct and planning of physical fitness training. The course will include topics in leader responsibilities in fitness training, components of fitness, principles of exercise, physical fitness program development, phases of conditioning, environmental factors and nutrition. Physical training will include, but is not limited to: running up to five miles, foot marches up to six miles with a pack, swimming, team sports, weight training, aerobics, and other activities designed to develop an individual’s components of fitness, teamwork, and aggressive competitive qualities. (F,SP)

2. Evolution of Warfare. (3) Three hours of lecture per week. Prerequisites: Upper division standing and consent of the instructor. This course covers the general aspects of warfare from the ancient world to the present. Emphasis is placed on causes of continuity and/or change of methods, as well as the influence of economic, moral, political, and technological factors on strategic thought. (SP)

Upper Division Courses
123. Korea, Vietnam and the American Military Experience. (3) Three hours of lecture per week. This course examines recent military experience of the United States in terms of the traditional American way of preparing for and waging war with emphasis on the strategy and tactics used in the Korean and Vietnam wars. (F)

145A. National Security Forces in Contemporary American Society. (3) Three hours of seminar per week. Prerequisites: Upper division standing and consent of instructor. This course focuses on commissioning of cadets and their transition to active duty. The primary focus of instruction is on the ethical, professional, and leadership challenges unique to the uniformed services. Students will examine the role of the military in the larger society and the impact of military service on personal, family, and community life. (SP)

145B. Preparation for Active Duty. (3) Three hours of lecture and for cadets only, a two-hour advanced seminar per week. Prerequisites: Consent of the instructor. This course will discuss the various roles of the military and the impact of military service on personal, family, and community life. (F)

154. The History of Littoral Warfare. (3) Three hours of lecture per week. An analysis of the history, origins, and development of the littoral and coastal environment. The course will cover major developments in amphibious warfare from World War II to the modern era. (F)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Individual arrangements must be arranged with the supervisor. In addition to the instruction, the student is required to complete a minimum of 45 hours per week in a specified area of study. The student must receive permission from the advisor to register for this course. (F,SP)

Aerospace Studies (Air Force ROTC)

Department Office: Hearst Gymnasium, (510) 642-3572
airforcerotc.berkeley.edu

The Department of Aerospace Studies offers students in virtually all academic areas the unique opportunity to qualify for a commission in the United States Air Force while simultaneously completing university undergraduate and graduate degree requirements. The two-year program is open to all Berkeley students. Students interested in the general military course are eligible to compete for scholarships which cover the costs of tuition, books, and most fees; also, a $250-$400 monthly living allowance is paid to each student on the college scholarship. Freshmen and sophomores competing for scholarships should contact the department.

Students not taking the general military course may still be eligible for the two-year professional officer course. This upper division course is open to students who have at least two full years of study remaining in their academic program. Selection for the professional officer course is based on aptitude, interest, college grades, and performance at a five-week field training camp. Students selected for the professional officer course are provided uniforms, textbooks, and a $350- or $400-monthly allowance while they are active in the program. Normally, upper division standing is required to enter the two-year program, but exceptions can be made for lower division students who can complete degree requirements in two years. It is also possible to take all or part of the professional officer course as a graduate student.

Both the two-year and the four-year AFROTC programs emphasize student participation and involvement. Classes are conducted as seminars and call for active student discussion. In addition, there is a two-hour leadership laboratory that is mandatory for all AFROTC cadets. In this laboratory, students become involved in the management of their own cadet organizations. Students also participate in projects, visits to Air Force bases, and orientation flights.

Completion of the program to earn an Air Force commission requires enrollment during each consecutive two-year period in a specific course in Aerospace Studies or Military Affairs. The normal sequence for the four-year program is as follows: AS 1, 2A, 2B, 2C, 135A, 135B; MA 145A, 145B. Students enrolled in the two-year program need only take the upper division course(s). All courses count for credit.

Aerospace Studies courses are open to all University students. Students from other institutions may participate in the AFROTC program through cross-enrollment arrangements or through University Extension.

For further information on enrollment requirements and procedures, contact the department staff at (510) 642-3572.

Lower Division Courses

1. The U.S. Air Force and National Security. (1) One and one-half hours of lecture/discussion per week. Introductory survey of the U.S. Air Force. Explores evolutionary factors affecting the nature and control of the military. Reviews current U.S. defense needs and the Air Force in terms of theory, function, mission, and organization. Major commands are examined individually. (F)

2A. The Evolution of U.S. Air Force and Space Power. (1) Course may be repeated for credit. One hour of lecture per week. Formerly Z. This course is designed to examine the general aspects of air and space power through a historical perspective. Utilizing this perspective, the course covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples are provided to extrapolate the development of Air Force capabilities (competencies and missions/functions) to demonstrate the evolution of what has become today’s air and space power. (F)

2B. The Evolution of U.S. Air Force and Space Power. (1) One hour of lecture per week. This course is designed to examine the general aspects of air and space power through a historical perspective. It examines several fundamental truths associated with war in the third dimension; e.g., principles of war and tenets of air and space power. As a whole, this course provides students with a knowledge level understanding for the element and employment of air and space power, from an institutional, doctrinal, and historical perspective. (SP)
100. Leadership Laboratory. For Air Force cadets only. Two hours of laboratory per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Training session supports cadet classroom learning. It consists of basic military knowledge and practical command and staff leadership experiences in preparation for active duty as military officers. This course focuses on the leadership experiences of providing training in basic military knowledge and skills to younger cadets. The main focus of this training is on proper uniform wear, grooming and appearance requirements, physical fitness, knowledge of the various military customs and courtesies, as well as a working knowledge of military drill and ceremony. This course is totally cadet-centered to maximize the leadership experience and prepare cadets to make an easy transition to their active duty assignments. (F,SP)

135A-135B. Air Force Leadership Studies. (3,3) Three hours of lecture/discussion per week. Prerequisites: 135A is a prerequisite to 135B or consent of instructor. This course is a study of leadership, management fundamentals, professional knowledge, and communication skills required of an Air Force junior officer. Lecture, text, case studies, and class discussion will be used to examine all aspects of leadership including decision-making, problem solving, accountability and authority. Students will develop upon basic written and oral communications skills primarily through written assignments and oral presentations. (F)

442. Light Aircraft Operations. (3) Three hours of lecture per week. This course prepares students to take the Federal Aviation Administration Private Pilot Knowledge Exam. Topics of study include the principles of flight, federal aviation regulations, the flight environment, aircraft systems and performance, basic meteorology, navigation, aviation physiology and comprehensive flight planning. (SP)

Military Science (Army ROTC)

Department Office: Hearst Gymnasium, (510) 643-7505 army.berkeley.edu

The Army Officer Education Program offers a variety of credit courses focused on the study of the military as an institution, adventure training opportunities, and a program of laboratory work in practical command and staff leadership. This program provides an opportunity to examine service in the Army while earning a baccalaureate degree. A student who completes the program may earn a commission in the Regular Army, Army Reserve, or National Guard.

Graduate or undergraduate students can complete the Military Science requirements through a four-, three-, or two-year program. The four- and three-year programs involve the basic and advanced courses; the two-year program involves only the advanced course. The Army ROTC Basic Course consists of two distinct components, the classroom introduction to the army profession and officership of the Military Science and Leadership Course, which consists of two distinct components, leadership, decision-making, and group process dynamics, and problem-solving lessons that the exercises offer. In addition to military skills, practical “life skills” are emphasized throughout the two years. By the end of the Basic Course, cadets should possess a basic understanding of the unique aspects of the officer corps, individual fitness, and healthy lifestyle. The lessons are designed to maximize cadet participation, inspire intellectual curiosity, and stimulate self-study. Upon completion of the course, cadets are eligible to enter the advanced course.

The Army ROTC Advanced Course is composed of four advanced courses, Military Science (MS) 141, 142, 431, and 432, and the Leadership Development Assessment Course (LDAC). The Advanced Course is designed to teach all knowledge, skills, and attitudes for commissioning as a new second lieutenant, and to establish a sound foundation for a career as a commissioned Army officer. The content and methods of the Advanced Course assume no prior cadet experience or other military training. This approach is taken because the Advanced Course comprises the minimum curriculum that an individual must complete in order to be commissioned. Advanced Course lessons are carefully sequenced and linked and are progressive in their treatment of key officer knowledge and competencies. Students are encouraged to synthesize lessons to form broader perspectives, deeper insights, and more robust problem-solving abilities by the use of earlier lessons. The sequencing of lessons is also designed to meet the immediate needs of cadets by addressing topics needed for success in the performance of officer responsibilities early in the MS 431 term and at the LDAC. Lessons are designed to facilitate entry into active military service during the MS 142 term.

The two-year program begins with direct placement in the advanced course. It is available to undergraduate or graduate students, who have completed any of the following: enlisted military service; the Army’s Leadership Training Course (LTC), which is a five-week ROTC basic camp at Fort Knox, Kentucky; or three years of Junior ROTC. Students must also be academically junior or higher with at least two academic years left until completion of their degree when they enter the advanced course.

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Department Office: Hearst Gymnasium, (510) 643-7505 army.berkeley.edu

The Army Officer Education Program offers a variety of credit courses focused on the study of the military as an institution, adventure training opportunities, and a program of laboratory work in practical command and staff leadership. This program provides an opportunity to examine service in the Army while earning a baccalaureate degree. A student who completes the program may earn a commission in the Regular Army, Army Reserve, or National Guard.

Graduate or undergraduate students can complete the Military Science requirements through a four-, three-, or two-year program. The four- and three-year programs involve the basic and advanced courses; the two-year program involves only the advanced course. The Army ROTC Basic Course consists of two distinct components, the classroom introduction to the army profession and officership of the Military Science and Leadership Course, which consists of two distinct components, leadership, decision-making, and group process dynamics, and problem-solving lessons that the exercises offer. In addition to military skills, practical “life skills” are emphasized throughout the two years. By the end of the Basic Course, cadets should possess a basic understanding of the unique aspects of the officer corps, individual fitness, and healthy lifestyle. The lessons are designed to maximize cadet participation, inspire intellectual curiosity, and stimulate self-study. Upon completion of the course, cadets are eligible to enter the advanced course.

The Army ROTC Advanced Course is composed of four advanced courses, Military Science (MS) 141, 142, 431, and 432, and the Leadership Development Assessment Course (LDAC). The Advanced Course is designed to teach all knowledge, skills, and attitudes for commissioning as a new second lieutenant, and to establish a sound foundation for a career as a commissioned Army officer. The content and methods of the Advanced Course assume no prior cadet experience or other military training. This approach is taken because the Advanced Course comprises the minimum curriculum that an individual must complete in order to be commissioned. Advanced Course lessons are carefully sequenced and linked and are progressive in their treatment of key officer knowledge and competencies. Students are encouraged to synthesize lessons to form broader perspectives, deeper insights, and more robust problem-solving abilities by the use of earlier lessons. The sequencing of lessons is also designed to meet the immediate needs of cadets by addressing topics needed for success in the performance of officer responsibilities early in the MS 431 term and at the LDAC. Lessons are designed to facilitate entry into active military service during the MS 142 term.

The two-year program begins with direct placement in the advanced course. It is available to undergraduate or graduate students, who have completed any of the following: enlisted military service; the Army’s Leadership Training Course (LTC), which is a five-week ROTC basic camp at Fort Knox, Kentucky; or three years of Junior ROTC. Students must also be academically junior or higher with at least two academic years left until completion of their degree when they enter the advanced course.

Financial Assistance and Scholarships. All advanced-course students receive a stipend of $350 (juniors) or $400 (seniors) monthly (nontaxable) for up to 10 months a year. Students may compete for two-, three-, or four-year ROTC scholarships. Students may compete for two- and three-year ROTC scholarships by participating in the program to compete for an ROTC scholarship. A scholar- ship includes money to cover tuition and fees, which can be used instead toward campus room and board or the authorized tuition and fees; an annual textbook allowance of $900; and a monthly stipend. Advanced-course scholarship students go on to receive a commission and serve as officers in the military for at least eight years, either on active duty or in the Army National Guard or Reserves, or a combination of the two.

Military Science courses are open to all University students. Students from other area institutions may participate in the Army ROTC program through cross-enrollment arrangements or through University Extension.

For more information concerning Army ROTC or the Department of Military Science, contact the staff at Hearst Gymnasium or call (510) 642-3374.

Lower Division Courses

1. Leadership Laboratory. The laboratory may be taken for eight sessions. Two hours of instruction and practical application in leadership and associated military skills. Must be taken on a passed/not passed basis. The instruction includes organization and management of military units, physical training, drill and ceremonies, land navigation techniques, survival skills, and extensive first aid training. (F,SP)

2. Foundations of Officership. (1) One hour of lecture/discussion per week. The purpose of this one credit hour seminar style course is to introduce the student to the issues and complexities of being a commissioned officer’s responsibilities. These initial lessons establish a framework for understanding officership, leadership, and Army values. Additionally, the seminar addresses life issues of time and management. This course is designed to give accurate insight into the Army profession and the officer’s role within the Army and to lay the foundation for further leadership development. This course is structured in modules. There are five modules containing 15 one-hour (50-minute) lessons, as follows:

Module 1—The Army Profession: Officership (what officers/leaders do, customs/courtesies).
Module 2—Personal Development (time/personal management).
Module 3—Physical Well-Being (physical fitness, stress management).
Module 4—Leadership (definition, AOR model, Army Be-Know-Do-model, character, and competence).
Module 5—Values and Ethics (morals vs. ethics, ethical decision making, Army (Institutional) Values). (F)

3. Basic Leadership. (1) One hour of lecture/discussion per week. The purpose of this course is to establish a foundation of basic leadership fundamentals. Topics covered include: problem solving, communications, briefings, and presentations, effective writing, goal setting, techniques for handling and speaking skills and an introduction to counseling. The course is structured in modules. There are four modules containing 14 one-hour (50 minute) lessons as follows:

Module 1—Communications.
Module 2—Personal Development.
Module 3—Physical Well-Being.
Module 4—The Army Profession: Officership. (SP)

Upper Division Courses

100. Individual Leadership Studies. (2) Two hours of lecture/discussion per week. The purpose of this two credit hour course is to develop students’ knowledge of self, self-confidence, and individual leadership skills. Through experiential learning activities, students develop problem solving and critical thinking skills, and apply communication, feedback, and conflict resolution skills. This course is structured in modules. There are four modules encompassing 30 one-hour (50 minute) lessons as follows:

Module 1—Enhanced Skills Training Program—This web based program assesses individual student strengths and weaknesses in mathematics and English skills. It designs a program of self study to improve individual weak areas to meet or exceed, minimum capabilities.
Module 2—Physical Well Being—Nutrition, life style, stress management, techniques, and issues.
Module 3—Individual Leadership Skills Development—Communications, Writing, Values, Ethics, confidence building.
Module 4—Leadership/team building—Group dynamics, Leadership case studies. (F)

101. Leadership and Teamwork. (2) Two hours of lecture/discussion per week. This course examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem-solving process, and obtaining team buy-in through immediate feedback. Instruction focuses on self-development guided by knowledge of self and group processes. Experiential learning activities are designed to challenge students’ current beliefs, knowledge, and skills. This course also provides equivalent preparation for the ROTC Advanced Course as the Leaders Training Course at Fort Knox, Kentucky. (SP)
141. Leadership and Management. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course begins with a series of lessons designed to enable cadets to make informed career decisions as they prepare their accessions documents. The next lessons concentrate on Army operations and training management, communications and leadership skills, and support the beginning of the final transition from cadet to lieutenant. The course enables cadets to attain knowledge and proficiency in several critical areas that they will need to operate effectively as an Army officer, including the Army’s training management system, coordinating activities with staff, and individual counseling skills. At the end of this semester, cadets should possess the fundamental skills, attributes, and abilities to operate as competent leaders and confidently shoulder the responsibilities entrusted to them. This course is structured in modules. There are six modules, as follows:

Module 1—The Army Profession: Officership.
Module 2—The Army Profession: Army Operations.
Module 3—Communications.
Module 4—Personal Development.
Module 5—Physical Well-Being.
Module 6—Leadership. (F)

142. Officership. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. This course is designed as the final step in preparing cadets to become commissioned officers. A variety of pertinent topics are covered including a case study analysis of military law and practical exercises on establishing a climate of ethical command. Students must complete a semester-long senior leadership project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. (SP)

Professional Courses

431. Leadership and Problem Solving. (3) Prerequisites: Consent of instructor. This course enables students with no prior military or cadet experience to gain the knowledge and skills necessary for successful performance of key leadership and military tasks. Students are first introduced to principles of physical fitness and healthy lifestyle so that they may effectively work to improve or maintain their physical fitness. Next, they are introduced to the Leader Development Program that will be used to evaluate leadership performance and provide developmental feedback. Cadets are then taught basic tactical principles and how to plan and conduct training. The course then turns to a four-week study of reasoning skills and the military-specific application of these skills. The term concludes with a detailed examination of officership, culminating in a five-hour case study. This course is structured in modules. There are four modules, as follows:

Module 1—Physical Well-Being.
Module 2—Individual Leadership Skills Development.
Module 3—The Army Profession: Army Operations.
Module 4—The Army Profession: Officership. (F)

432. Leadership and Ethics. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. This course examines the role communications, values, and ethics play in effective leadership. Topics covered include ethical decision-making, and written communication abilities. (F,SP)

Naval Science (Naval ROTC)

Department Office: 152 Hearst Gymnasium, (510) 642-3551

The Department of Naval Science offers several programs of instruction for men and women leadership, ethics, and support the beginning of the final transition from cadet to lieutenant. The course enables cadets to attain knowledge and proficiency in several critical areas that they will need to operate effectively as an Army officer, including the Army’s training management system, coordinating activities with staff, and individual counseling skills. At the end of this semester, cadets should possess the fundamental skills, attributes, and abilities to operate as competent leaders and confidently shoulder the responsibilities entrusted to them. This course is structured in modules. There are six modules, as follows:

Module 1—The Army Profession: Officership.
Module 2—The Army Profession: Army Operations.
Module 3—Communications.
Module 4—Personal Development.
Module 5—Physical Well-Being.
Module 6—Leadership. (F)

432. Leadership and Ethics. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. This course is designed as the final step in preparing cadets to become commissioned officers. A variety of pertinent topics are covered including a case study analysis of military law and practical exercises on establishing a climate of ethical command. Students must complete a semester-long senior leadership project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. (SP)

Professional Courses

431. Leadership and Problem Solving. (3) Prerequisites: Consent of instructor. This course enables students with no prior military or cadet experience to gain the knowledge and skills necessary for successful performance of key leadership and military tasks. Students are first introduced to principles of physical fitness and healthy lifestyle so that they may effectively work to improve or maintain their physical fitness. Next, they are introduced to the Leader Development Program that will be used to evaluate leadership performance and provide developmental feedback. Cadets are then taught basic tactical principles and how to plan and conduct training. The course then turns to a four-week study of reasoning skills and the military-specific application of these skills. The term concludes with a detailed examination of officership, culminating in a five-hour case study. This course is structured in modules. There are four modules, as follows:

Module 1—Physical Well-Being.
Module 2—Individual Leadership Skills Development.
Module 3—The Army Profession: Army Operations.
Module 4—The Army Profession: Officership. (F)

432. Leadership and Ethics. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. This course examines the role communications, values, and ethics play in effective leadership. Topics covered include ethical decision-making, and written communication abilities. (F,SP)
10. Naval Ship Systems I. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Mathematics 1A or 16A, and operation of ships. Emphasis on description and analysis of major types of propulsion plants, both conventional and nuclear. Principles of thermodynamic cycles, electrolytic power generation, and electrical equipment and systems. Ship construction, strength and stability in intact and damaged conditions. Factors and design criteria for seaworthiness, structural integrity, and operational employment. (SP)

12A. Navigation and Naval Operations I. (3) Three hours of lecture and one hour of laboratory per week. Theory, principles, and procedures of terrestrial and celestial navigation and piloting techniques. A study of coordinating systems, including the celestial coordinate systems. Texts and publications, position fixing, dead reckoning, naval astronomy, the theory and methods of celestial navigation, and the theory and prediction of tides and current. (F)

12B. Navigation and Naval Operations II. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: 12A or consent of instructor. Introduction to the various aspects of ship operations at sea. Principles of terrestrial navigation including the rules of the road for prevention of collisions at sea, vector analysis of ship motion, ship behavior and characteristics in maneuvering, precise ship positioning, use of aids to navigation, meteorology, and electronic navigation. (SP)

24. Freshman Seminars. (1) Course may be repeated for credit. Three hours of lecture and one hour of seminar per week. Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Berkeley seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP)

Professional Courses

400A-400B. Naval Laboratory. Three hours of instruction and practical application in leadership and associated military skills. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as: drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations administration, and topics in military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science. (F,SP)

400D-400E. Naval Laboratory. Three hours of instruction and practical application in leadership and associated military skills. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as: drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science. (F,SP)

Program Overview

The Graduate Group in Molecular and Biochemical Nutrition (from the Graduate Group in Interdepartmental Graduate Groups) offers a degree program that focuses on the interaction of nutrition and metabolism. Graduate research may be focused at any level of integration from molecules and cells to laboratory animals and humans. The program has strong strengths in cellular and molecular nutrition and in human nutrition and its relationship to cellular and molecular processes. The faculty is drawn from a variety of departments at UC Berkeley, including Nutrition Science and Toxicology and Molecular and Cell Biology. Additional adjunct faculty from Children's Hospital Oakland Research Institute are also part of the group.

For admission to the Ph.D. program, students should have a bachelor's degree or its equivalent in nutritional sciences or related fields, including food science, biochemistry, and any of the biological sciences. Candidates for the Ph.D. degree are required to complete a sequence of core graduate nutrition courses and the Ph.D. qualifying examination. In addition, all students in the group gain experience in teaching through their service as a graduate student instructor. Students seeking further information concerning matters such as curricula, admission, and financial support should consult the program web site at mbn.berkeley.edu.

For undergraduate programs in nutrition, go to nutrition.berkeley.edu.

Molecular and Cell Biology

(College of Letters and Science)

Office: 117 Morgan Hall, (510) 643-2863
Chair: Joseph Napoli, Ph.D.

Professors


Associate Professors

Barbara Abrams, Dr.P.H. (Public Health) Nancy K. Amy, Ph.D. (Nutritional Science and Toxicology) Gregory W. Aponi, Ph.D. (Nutritional Science and Toxicology) George W. Chang, Ph.D. (Nutritional Science and Toxicology) Christopher Vype, Ph.D. (Nutritional Science and Toxicology) Susana M. Oza (Nutritional Science and Toxicology Emerita) Ph.D.

Adjunct Professors

Ronald M. Krauss, M.D. (Nutritional Science and Toxicology) Robert O. Ryan, Ph.D. (Nutritional Science and Toxicology) Elizabeth C. Theil, Ph.D. (Nutritional Science and Toxicology)

Program Overview

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For undergraduate programs in nutrition, go to nutrition.berkeley.edu.
Molecular and Cell Biology / 371

Department Overview

The teaching and research activities of the Department of Molecular and Cell Biology (MCB) concern the molecular basis of cellular life and its roles in the function, reproduction, and development of living organisms. This agenda covers a broad range of specialized disciplines, such as biochemistry, microbiology, bio- physics, molecular biology, genetics, cell biology, cell biology, cell and organ development, and nucleic acid transactions. The types of living organisms from which the departmental faculty draws its working materials are as diverse as its disciplinary specializations, ranging from viruses and microbes through plants, fungi, vertebrates, and mammals. The fnal product of the department is organized into five divisions: Biochemistry and Molecular Biology; Cell and Developmental Biology; Genetics, Genomics and Development; Immunology and Pathogenesis; and Neurobiology.

The Undergraduate Major

The undergraduate major in molecular and cell biology is composed of fve emphases that encompass the diversity of scientifc interests of the department faculty. Students majoring in any emphasis have been highly successful in entering graduate or medical school and in other science- and health-related careers. Details on the MCB major, its requirements and policies, as well as resources for students, are available in the MCB Undergraduate Ofce, 2083 Valley Life Sciences Building, or see their web site at mcb.berkeley.edu/undergrad.

Lower Division Requirements

For all but BMB Biological Chemistry: Math 1A-1B, Chemistry 1A (or Chemistry 4A), 3A/3BL, Biology 1A/1AL-1B, and some stufers will take a core curriculum that includes more molecular and structural components and others will have a more cellular and systems orientation, but the perspectives and content of all emphases overlap considerably.

For BMB Biological Chemistry: Math 1A-1B, Chemistry 1A-1B (or Chemistry 4A-4B), Biology 1A/1AL-1B, and Physics 8A-8B (or Physics 7A-7B). Total lower division units: 39. (Note: BMB Biological Chemistry majors must take Chemistry 112A-112B in place of Chemistry 3A/3AL-3BL.)

Upper Division Requirements

For Biochemistry and Molecular Biology (BMB): MCB C100A, 100B, 110, 110L, 140/C148, BMB elective.


For Cell and Developmental Biology (CDB): MCB 102, 130, 130L, 136/141/C142, three CDB electives.

For Genetics, Genomics, and Development (GG&G): MCB C100A, 110, 140, 140L, GG&D elective A, and elective B.

For Immunology and Pathogenesis (IM&P): MCB C100A, 110, 140/C142, 150, 150L, IM&P elective A, and elective B.

For Neurobiology: MCB 102, 130, C160, 160L/163; NEURO elective A, elective B.

Honors Program

The MCB honors program offers exceptional senior students recognition for outstanding academic achievement and the opportunity to conduct original research under the guidance of an MCB faculty member. To graduate with honors in the major, students must: (1) complete at least two semesters of research including 4 to 8 units of MCB H196; (2) have a cumulative Berkeley GPA of at least 3.3 in all work completed at Berkeley; (3) have at least a 3.5 GPA in all upper division MCB courses; (4) present their research in an approved forum, such as an MCB symposium, the Undergraduate Poster Session, or other scientifc meeting; and (5) write an honors thesis. Details on the MCB honors program are available from the Undergraduate Affairs Office, 2083 Valley Life Sciences Building, or see their web site at mcb.berkeley.edu/undergrad.

Graduate Program

The department offers a program of graduate study leading to the Ph.D. in molecular and cell biology. This program provides advanced training in the research methods and concepts of the study of the molecular structures and processes of cellular life and their roles in the function, reproduction, and development of living organisms. This agenda covers a broad range of specialized disciplines, such as biochemistry, microbiology, bio-physics, molecular biology, genetics, cell biology, cell and organ development, and nucleic acid transactions. The types of living organisms from which the departmental faculty draws its working materials are as diverse as its disciplinary specializations, ranging from viruses and microbes through plants, fungi, vertebrates, and mammals. The fnal product of the department is organized into divisions: Biochemistry and Molecular Biology; Cell and Developmental Biology; Genetics, Genomics and Development; Immunology and Pathogenesis; and Neurobiology.

**Professor of the Graduate School**

**Recipient of Distinguished Teaching Award**
life. The training is intellectually focused, but at the same time offers unusually wide opportunities for varied disciplinary specialization. Undergraduate preparation for admission to the program should correspond to one of the two plans of the departmental undergraduate major detailed above. All students working for the Ph.D. will be required to serve one year of instruction in each of the first four semesters during the first three years. Students seeking detailed information about such matters as admission, curriculum, and sources of financial support should go to mcb.berkeley.edu or contact the Graduate Advisor by mail at Graduate Affairs Office, Department of Molecular and Cell Biology, University of California, Berkeley, 299 Life Sciences Addition #3200, Berkeley, CA 94720-3200. E-mail: mcbgao@berkeley.edu.

Research Facilities

The Cancer Research Laboratory is a research institute on the Berkeley campus that carries on a research, teaching, and service program designed to foster interdepartmental participation in cancer research. Some of the Department of Molecular and Cell Biology faculty are also members of the Cancer Research Laboratory Research Program. The Cancer Research Laboratory provides the infrastructure, technologies, and training is offered in methods and techniques associated with each facility. For more information, go to biogy.berkeley.edu/crl.

The Functional Genomics Laboratory at Berkeley was established to allow Berkeley scientists to exploit profound technological advances in the field of genomics. These advances, which include the sequencing of entire genomes of selected model systems, offer unprecedented opportunities to survey the entire spectrum of gene expression and the wide range of pathways of cellular processes, which now allow for the dissection of biological processes at levels of detail never before possible. In particular, this research program represents a multidisciplinary approach to an understanding of the mechanism of neoplastic transformation using a variety of system. Graduate and postdoctoral associates and students programs are supported in various areas of tumor biology, biochemistry, cell biology, endocrinology, genetics, immunology, molecular biology, and tumor virology. The Functional Genomics Laboratory also operates five research facilities: (1) Flow Cytometry Facility for fluorescence activated cell sorting and analysis; (2) Molecular Imaging Facility with high concentration of microscope for imaging analysis; (3) Protein and Mass Spectrometry Facility; (4) Immunology DNA Microarray Consortium; and (5) Gene Targeting Facility for construction of transgenic and knockout mice. The instrument in the facilities is controlled by highly trained staff, and training is offered in methods and techniques associated with each facility. For more information, go to bioivy.berkeley.edu/crl.

The Robert D. Ogg Electron Microscope Laboratory is an instructional and research unit of the College of Letters and Science. It houses equipment for transmission electron microscopy (TEM) and scanning electron microscopy (SEM). The staff is skilled not only in the operation and maintenance of instruments but in standard and most specialized techniques of sample preparation. Quantitative image analysis and graduate students, postdoctoral associates, faculty, and research staff in biological and physical sciences, once trained, may make arrangements for use of the instruments. The Laboratory is open in the form of both classes and individual training. Training is provided as MCB 481B and/or 481C. Registered students and faculty are not charged for training. Nominal charges are made for use of the instruments for non-MCB research work. With permission of the director, non-UC personnel can be accepted for training or laboratory use. Equipment can be used outside normal hours. The laboratory is equipped with the latest generation of electron microscope and preparative techniques for all-organization.uberscan apparatus and can make special arrangements for tour groups. For more information, go to biology.berkeley.edu/EML.

Other specialized research facilities include those for X-ray diffraction, X-ray crystallography, biophysical studies, large-scale fermentation, tissue culture, and DNA sequencing.

Division of Biochemistry and Molecular Biology

Lower Division Courses

11. Of Molecules and Man: A View for the Layman. (3) Students will receive no credit for 11 after taking Biology 1A, 1B, Chemistry 3A-3B, 10 or 112A-112B, 112H. Three hours of lecture and one hour of discussion per week. Examination of molecular mechanisms that underlie normal functions of living organisms and ways in which those functions are disrupted by medical disorders and environmental agents. Designed to provide non-biologists with a grounding in modern biochemistry and the ways we control and alter the biology of our life and environment. (SP) Aper

Upper Division Courses

C100A. Biophysical Chemistry: Physical Principles and the Molecules of Life. (4) Students will receive 3 units of credit for Chemistry C100A or Molecular and Cell Biology C100A after taking Chemistry 120B. Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 1A or 11A, Mathematics 1B or 11B, Chemistry 3A-3B, 10 or 112A-112B or 112H recommended. Thermodynamic and kinetic concepts will be used in developing the chemistry and structure of biomolecules (proteins, DNA, and RNA). Molecular distributions, reaction kinetics, enzyme kinetics, Bioenergetics, energy transduction, and motor proteins. Electrochemical potential, membranes, and ion channels. Also listed as Chemistry C130. (F,SP)

C100B. Biochemistry: Pathways, Mechanisms, and Regulation. (3) Students will receive 2 units for 100B after taking 102 and no credit after taking 100. Two hours of lecture and one hour of discussion per week. Prerequisites: Chemistry C100A, Formerly 100B. Bioenergetics, metabolic pathways, and regulation of metabolism: the chemistry, structure, function, synthesis, and degradation of the constituent molecules (amino acids, carbohydrates, nucleotides) and cofactors of the major biological macromolecules. Diseases that are linked to metabolic disorders. Designed for majors in the biochemistry and molecular biology, genetics and development, or graduate studies, or medical education. (F,SP) Aper,

Glaeser, Kirsch, Klumman

102. Survey of the Principles of Biochemistry and Molecular Biology. (4) Students will receive 2 units of credit for 102 after taking 100 or C100A/Chemistry C100A after taking 110 and either of 100 or C100A/Chemistry C130. Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A, 1AL and Chemistry 3B or equivalent courses. Recommended: A course in physical chemistry. A comprehensive survey of the fundamentals of biological chemistry, including the properties of intermediary metabolites, the structure and function of biological macromolecules, the logic of metabolic pathways (both catabolic and biosynthetic) and the molecular basis of genetics and gene expression. (F,SP) Staff

C103. Bacterial Pathogenesis. (3) Three hours of lecture per week. Prerequisites: C100A/Chemistry C130 or equivalent or consent of instructor. This course for upper division and graduate students will explore the molecular and cellular basis of bacterial pathogenesis. The course will focus on model microbial systems which illustrate mechanisms of pathogenesis. Most of the emphasis will be on bacterial pathogens of mammals, but there will be some discussion of viral and protozoan pathogens. There will be an emphasis on experimental approaches. Lecture topics will include some aspects of bacterial genetics and physiology, immune response to infection, and the cell biology of host-parasite interactions. Also listed as Plant and Microbial Biology C103. (SP) Portny

104. Genetics, Genomics, and Cell Biology. (4) Students will receive 1 unit for 104 after taking 140 or C142/Integrative Biology C183, or 3 units after taking 110 or 130. Three hours of lecture and one hour of discussion per week. Prerequisites: 102 (may be taken concurrently). This course will introduce students to key concepts in genetic analysis, eukaryotic cell biology, and state-of-the-art approaches in genetic medicine. Lectures will highlight basic principles of cellular processes with the basis for human diseases, particularly cancer. Prerequisite courses will have introduced students to the concepts of cells, the central dogma of molecular biology, and gene regulation. Emphasis in this course will be on eukaryotic cell processes, including cellular organization, dynamics, and signaling. (F,SP) Staff

110L. General Microbiology and Molecular Biology Laboratory. (4) Two hours of lecture and six to eight hours of laboratory per week. Prerequisites: C112 or equivalent courses. (F,SP) may be taken concurrently). Experimental techniques of biochemistry and molecular biology, designed to accompany the lectures in 100B and 110. (F,SP) Staff

111. Introduction to Structural Biology. (3) Three hours of lecture per week. Prerequisites: C100A/ Chemistry C130, 100B. This course for upper division majors will teach principles of protein and nucleic acid structures and outline basic experimental methods for structural biology and biochemistry. The course will cover the molecular bases for physiological and biochemical diversity among members of the two major domains, Bacteria and Archaea. The ecological significance and evolutionary origins of this diversity will be discussed. Molecular, genetic, and structure-function analyses of microbial cell cycles, adaptive responses, metabolic capability, and macromolecular syntheses will be emphasized. Also listed as Plant and Microbial Biology C112. (F) Ludden, Ryan, Zusman

C112L. General Microbiology Laboratory. (2) Four hours of laboratory and one hour of discussion per week. Prerequisites: C112 or Plant and Microbial Biology C112 (may be taken concurrently). Experimental techniques of molecular biology and genetic diversity of microorganisms will be introduced. The course will cover the molecular bases for physiological and biochemical diversity among members of the two major domains, Bacteria and Archaea. The ecological significance and evolutionary origins of this diversity will be discussed. Molecular, genetic, and structure-function analyses of microbial cell cycles, adaptive responses, metabolic capability, and macromolecular syntheses will be emphasized. Also listed as Plant and Microbial Biology C112L. (F) Kustu

113. Applied Microbiology and Biochemistry. (2) Two hours of lecture per week. Prerequisites: C112 or consent of instructor. Lectures will cover recent developments emphasizing the application of the knowledge
of fundamental microbiology to industrial processes. Topics include production of metabolites, enzymes, and single-cell proteins; genetic manipulation of microorganisms; recovery of minerals; and energy production. (SP) Nikaido

C114. Introduction to Comparative Virology. (4) Three hours of lecture per week. Prerequisites: Introductory chemistry (1A or 3A-3B or equivalent) and introductory biology (1A, 1AL, or 1B and equivalent) and general biology (C100A or equivalent—preferably completed but may be taken concurrently). Viruses will be considered as infectious agents of bacteria, plants, and animals (vertebrates and invertebrates). New types of viruses will be compared with respect to biochemical, structural and morphological properties, and strategies of infection and replication. Also listed as Environ Sci, Policy, and Management C139 and Plant and Microbial Biology C114. (SP) Jackson

115. Molecular Biology of Animal Viruses. (2) Two hours of lecture per week. Prerequisites: Upper division or graduate status; C100A/Chemistry C130 or C112 or equivalent. Structure, reproduction, mutations, and host cell interactions (including pathogenesis) of animal viruses. This upper division and graduate course will broadly survey the strategies that viruses use to propagate in eukaryotic cells, with an emphasis on understanding systems and discovering new viruses. We will also discuss host mechanisms of defense against viruses. Graduate students should additionally enroll in 215. 115/215 are taught concurrently. (SP) Staff

C116. Microbial Diversity. (3) Three hours of lecture per week. Prerequisites: Upper-division standing, C112 or consent of instructor and organic chemistry (may be taken concurrently). Formerly 116. This course for upper-division and graduate students will broadly survey the general biology of types of microbial organisms, both procaryote and eucaryote; using a phylogenetic framework to organize the concept of “biodiversity.” Emphasis will be on the evolutionary development of the general biological strategies. Graduate students additionally should enroll in C216, Microbial Diversity Workshop. Also listed as Plant and Microbial Biology C116. (SP) Staff

Graduate Courses

200. Advanced Biochemistry and Molecular Biology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C100A or equivalent. General course for first-year graduate students. Recent advances in the study of structural, functional, and genetic characteristics of prokaryotic and eukaryotic cell components—molecular and macromolecular synthesis; regulation of gene expression; chromosome organization, cell signaling, proliferation, and differentiation. Admission to the course requires formal consent of the instructors, except for MCB graduate students and graduate students in the laboratories of MCB faculty. Enrollment is required. (SP) Auditors are not permitted in the discussion sessions. (F)

206. Physical Biochemistry. (3) Three hours of lecture per week. Prerequisites: Year courses in organic chemistry and physical chemistry: 100 recommended. Application of modern physical concepts and experimental methods to the analysis of the structure, function, and interaction of large molecules of biological interest. (F) Staff

C209. Dietary Determinants of Cancer, Heart Disease, and Aging. (3) Three hours of lecture per week. Formerly C210. The influence of diet on DNA damage, cancer, and aging will be discussed with an emphasis on mechanisms as a major contributor to DNA damage, cancer, and aging. The influence of diet on atherosclerotic heart disease will be covered with an emphasis on the role of dietary constituents proposed to have either toxic or preventive effects in the artery wall. Readings will consist of papers from the literature. Also listed as Nutritional Science and Toxicology C210. (SP) Ames

210X. Foundations of Biochemistry and Molecular Biology. (1) One hour of discussion per week. Prerequisites: Graduate standing; 110 must be taken concurrently. C100A or equivalent recommended or equivalent. General course for first-year graduate students (except those in MCB laboratories). Prokaryotic and eukaryotic molecular biology; biological macromolecules; DNA replication, recombination, and repair; chromosome organization and mechanics; transcription, gene regulation; protein synthesis, intracellular protein trafficking; molecular basis of disease; structure; hormones and signaling, transduction mechanisms, cell cycle control; modern methods. (F) Staff

211. An Introduction to Structural Biology and Physical Biochemistry. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course is for Molecular and Cell Biology graduate students. It will teach principles of protein and nucleic acid structure and outline basic experimental methods for conformational studies. The classical problems of structural biology, as well as new approaches and methods, will be emphasized. Courses 111 and 211 are taught concurrently. Students enrolled in 211 will also be required to attend a weekly discussion section and to prepare a mini-grant proposal. (SP) Staff

C212A. Chemical Biology I—Structure, Synthesis and Function of Biomolecules. (1) Three hours of lecture for five weeks. Prerequisites: Chemistry 200 or consent of instructor. This course will cover the structure of proteins, nucleic acids, and oligosaccharides from the perspective of organic chemistry. Modern methods for the synthesis and purification of these molecules will also be presented. Also listed as Chemistry C271A. (SP) Staff

C212B. Chemical Biology II—Enzyme Reaction Mechanisms. (1) Three hours of lecture for five weeks. Prerequisites: Chemistry 271A or consent of instructor. This course will focus on the principles of enzyme catalysis. The course will begin with an introduction of the general concepts of enzyme catalysis which will be followed by detailed examples that will examine the chemistry behind the reactions and the three-dimensional structures that carry out the transformations. Also listed as Chemistry C271B. (SP) Staff

C212C. Chemical Biology III—Contemporary Topics in Chemical Biology. (1) Three hours of lecture for five weeks. Prerequisites: Chemistry 271B or consent of instructor. This course will build on the principles discussed in the previous five week sections. The focus will consist of case studies where rigorous chemical approaches have been brought to bear on biological questions. Potential subject areas will include signal transduction, gene expression from eukaryotic chromosomes, and cancer. For each topic, the appropriate bioanalytical techniques will be emphasized. Also listed as Chemistry C271C. (SP) Staff

C214. Protein Chemistry, Enzymology, and Bioorganic Chemistry. (2) At the instructor’s discretion, the course may be split into two sections of four weeks each. Three hours of lecture per week with one hour of discussion per week. Prerequisites: Year courses in organic chemistry and physical chemistry: 100 recommended. Formerly C214. An advanced course in bioorganic chemistry which will focus on the principles of enzyme catalysis. The course will begin with an introduction of the general concepts of enzyme catalysis which will be followed by detailed examples that will examine the chemistry behind the reactions and the three-dimensional structures that carry out the transformations. Also listed as Chemistry C230. (SP) Kliman

215. Molecular Biology of Animal Viruses Workshop. (1) One hour of workshop per week. Prerequisites: Graduate standing; C100A/Chemistry 130, 102B, 102, 110, or equivalent, or consent of instructor. The course will begin with an introduction to protein structure; protein-protein interactions; enzyme kinetcs and mechanism; enzyme design. Intended for graduate students in chemistry, biochemistry, and molecular and cell biology. Also listed as Chemistry C230. (SP) Kliman

218A. Bacterial Viruses. (2) Initiation of DNA replication, the regulation of transcription at the initiation and termination stages, DNA packaging, interference with the host cell, virolysis, the heat shock response. (F,SP) Calendar

218E. Viruses as Models for Eukaryotic Gene Expression and Replication. (2) Recent developments in eukaryotic viral and cellular regulation. New concepts in transcription and RNA replication, with particular emphasis on viral protein-coding RNAs. (SP) Staff

218F. Energy-dependent Proteases and Molecular Machines. (2) Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor or consent of instructor. Our goals are to decipher the fundamental principles that govern substrate engagement, de-ubiquitylation, unfolding, and translocation by the proteasome. Martin

218G. Mycobacterial Development. (2) Review of current literature and discussion of original research. Zisman

218H. Protein Synthesis in Bacteria and Mammals. (2) The mechanism of protein synthesis in bacteria and human cells. Specific areas of interest include the structure and function of the ribosome and the regulation of protein synthesis. (F,SP) Cate

218J. Advanced 20th Century Perspectives on Cancer Cell Genetics. (2) Prerequisites: Consent of instructor. Transduction of cellular sequences and genetic regulation of transformation by oncogenic retroviruses as models for natural carcinogenesis, including a critical review of the current research. Duesberg

218K. Channel-Forming Membrane Proteins. (2) Structure, functional properties, and assembly of proteins that form nonspecific and specific passive diffusion channels, as well as active transport apparatus, in bacterial membranes. Nikaido

218M. Chemical Biology and Enzymology. (2) Topics at the interface of chemistry and biology with a particular focus on mechanisms of enzyme catalysis. (F,SP) Marietta

218N. Eukaryotic Transcriptional Control. (2) Nucleic acid and protein components involved in regulating gene expression from eukaryotic chromosomes. Kane

218R. The Protein Folding Problem. (2) Protein structure, stability, design, and the pathway of protein folding. Marqusee


Molecular and Cell Biology / 373

B prefix=language course for business majors
C prefix=core-listed course
H prefix=honors course
R prefix=course satisfies R&RC requirement
AC suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Division of Cell and Developmental Biology

Lower Division Courses

31. Genes, Cells, and Creatures. (3) Students with credit for Biology 1A and 1B will not receive credit for 31. Two hours of lecture and one hour of discussion per week. An introduction to current research on the genetics, cell biology, and immunology of the model facultative intracellular bacterial pathogen, Listeria monocytogenes. Portnoy

219. Research Review in Biochemistry and Molecular Biology. Course may be repeated for credit with consent of instructor. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Review of current literature and discussion of original research. (F,SP)

219F. Eukaryotic Gene Expression. (2) Prerequisites: Consent of instructor. Protein-DNA interactions and the control of gene expression in eukaryotes. (F,SP)

219H. Molecular and Cell Biology of Listeria monocytogenes Pathogenesis. (2) Discussion of recent research on the genetics, cell biology, and immunology of the model facultative intracellular bacterial pathogen, Listeria monocytogenes. Portnoy

219J. Structure and Function of RNA. (2) RNA structure, folding, and function. Specific topics include ribozyme mechanisms, RNA-mediated translation initiation, and protein targeting and secretion. (F,SP)

219Q. Structural Biology of Molecular Machines. (2) Crystallographic and biochemical studies of protein machines, focused on protein-nucleic acid interactions, analysis of chemomechanical function with emphasis on multiprotein complexes will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field. Berger

219S. Structural Biology of Signaling and Replication. (2) Mechanisms and structure in DNA replication and eukaryotic cell signaling. (F,SP)

219T. Signal Transduction Mechanisms. (2) Discussion of recent research on various aspects of signal transduction mechanisms in eukaryotic cells, including G protein-coupled receptors, protein kinase cascades, synthesis and mobilization of lipid mediators, calcium sensing and release, activation and inhibition of gene expression, and the biochemical basis of signal desensitization and physiological adaptation, with special emphasis on genetic and molecular analysis of these systems, especially in the yeast Saccharomyces cerevisiae. Thomer

219U. Single Molecule Biophysics. (2) Methods of single molecule manipulation and visualization that are used to characterize the structure and mechanodynamics of DNA and RNA binding proteins, such as RNA polymerase, and to investigate the mechanical denaturation of single protein molecules will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field. Bustamante

219V. Biochemistry of Autophagy. (2) (F,SP) Zhong

219X. Cell Surface Glycoconjugate Interactions. (2) Investigations of cell surface glycoproteins as mediators of cell-cell interactions. Development of new methods for engineering cell surface structures. (F,SP) Bentozzi

219Y. Regulation of HIV Gene Expression. (2) Regulation of HIV gene expression by viral proteins and cellular cofactors will be covered in research reports and reviews of the current literature and discussion of current experiments in the field. Zhou

219Z. Telomere Synthesis and Dynamics. (2) Emphasizes a study of the replication of eukaryotic telomere. Specific focus on techniques in protein biochemistry and molecular biology. Collins

C134. Chromosome Biology/Cytogenetics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Upper division genetics or cell biology course; concurrent enrollment with consent of instructor. Special focus on techniques in chromosome research with an emphasis on behavior in model organisms. Topics include mitosis, meiosis, chromosome aberrations, genome function, dosage compensation, transposable elements, repetitive DNA, and modern cytological imaging. Also listed as Plant and Microbial Biology C134. (SP) Cande, Hollick

135. Topics in Cell and Developmental Biology. At least three courses per year will be offered from the following list. (F,SP)

135A. Molecular Endocrinology. (3) Prerequisites: Modeling and computer simulation of dynamic biological processes using special graphical interfaces requiring very little mathematical or computer experience. Models are drawn from the current literature to teach concepts and technique. The later part of the course is a workshop for student-selected individual projects. Computer work may be done at home or in the university laboratory. (SP) Macey, Oster

Graduate Courses

230. Advanced Cell Biology. (4) Three hours of lecture and one hour of discussion per week. Auditors are not permitted in the discussion sections. Prerequisites: 130. Formal consent of instructors required, except for MCB graduate students and graduate students in the laboratories of MCB faculty. Advanced treatment of topics in cell biology. (F,SP) Staff

230X. Foundations in Cell Biology. (1) One hour of discussion per week. Prerequisites: Graduate standing, 130 (must be taken concurrently), 102 or equivalent, and Biology 1A, 1AL, or their equivalents. General course for first-year graduate students (except those in molecular and cell biology laboratories). The assembly of supramolecular structures; membrane structure and function; the cell surface; cytoplasmic membranes; the cytoskeleton and cell motility; the eukaryotic genome, chromatin, and gene expression; the cell cycle; organelle biogenesis, differentiation, and morphogenesis. (F,SP) Staff

230Y. Chromosome Biology/Cytogenetics. (3) Three hours of lecture per week. Formerly 134L. Modeling and computer simulation of dynamic biological processes using special graphical interfaces requiring very little mathematical or computer experience. Models are drawn from the current literature to teach concepts and technique. The later part of the course is a workshop for student-selected individual projects. Computer work may be done at home or in the university laboratory. (SP) Macey, Oster

230Z. Telomere Synthesis and Dynamics. (2) Emphasizes a study of the replication of eukaryotic telomere. Specific focus on techniques in protein biochemistry and molecular biology. Collins

231. Advanced Developmental and Stem Cell Biology. (4) Three hours of lecture and one to two hours of discussion per week. Prerequisites: Previous course in development (131 or equivalent) or consent of instructor. Principles of animal development will be set forth from the classical and recent experimental analysis of induction, localization, patterning mutants, axis formation, regional gene expression, and cell interactions. Early development of selected verte-
brates and invertebrates will be examined, and emerging topics in microRNA and stem cell biology will be highlighted. A weekly discussion section with readings from the research literature is required. (SP) Staff

236. Advanced Mammalian Physiology. (5) Three hours of lecture and two hours of seminar per week. Prerequisites: Consent of instructor. Principles of mammalian (primarily human) physiology emphasizing physical, chemical, molecular, and cellular bases of functional biology. The following topics will be covered: cellular and membrane ion and nonelectrolyte transport; cell and endothelial regulation; autonomic nervous system regulation; skeletal, smooth, and cardiac muscle physiology; respiration; renal physiology; gastrointestinal physiology. Discussion section will study advanced physiological topics, including: presentations by the faculty; problem sets; discussion of the primary literature and of reviews; two presentations by each student on topics in current physiological research. (F,SP) Forte

C237. Stem Cells and Directed Organogenesis. (3) Three hours of lecture/laboratory per week. Grading: Letter; Satisfactory/Unsatisfactory for CIRM humanities and law fellows. Prerequisites: Consent of instructor. This course will provide an overview of basic and applied embryonic stem cell (ESC) biology. Topics will include early embryonic development, ESC laboratory methods, and methodologies for directed differentiation and other stem cell manipulations, and clinical uses of stem cells. Also listed as Bioengineering C218. (SP) Conboy

237SC. Current Ethical, Legal, and Social Issues in Stem Cell Research. (1) Consent of instructor. (1) One-and-one-half hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Restricted to California Institute for Regenerative Medicine Scholars. Space permitting, graduate students, postdoctoral appointments or graduate groups may enroll with consent of instructor. The course will cover key topics in the ethical, social, and legal aspects of stem cell research and medicine, including: intellectual consent, egg and tissue donation, access to medical care, intellectual property, governmental and institutional regulations, and international perspectives on stem cell research. Required for CIRM scholars. Molecular and Cell Biology graduate students and trainees cannot substitute this course for 293C. (SP) Thompson

239. Research Review in Cell and Developmental Biology. Course may be repeated for credit. Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Review of current literature and discussion of original research. (F,SP)

239B. Regulation of the Cell Cycle. (2) Rape

239D. Epithelial Function, Structure, and Regulations. (2) Machen

239E. Tumor Biology. (2) Nandi

239EE. Cell Morphogenesis. (2) (F,SP) Heald

239F. Nucleocytoplasmic Transport. (2) Weis

239FF. Signal Transduction and Tumor Suppressor Genes. (2) (F,SP) Luo

239GG. (2) Mouse neuronal stem cell differentiation. Wurmser

239H. Cell Division. (2) Cande

239HH. Mechanisms of Control of Growth and Cell Proliferation. (2) Identifying pathways that restrict growth and cell proliferation in vivo. Har hành

239I. Cytoskeleton and Cell Motility. (2) Welch

239J. Steroid Hormone and Growth Factor Action. (2) Firestone

239K. Secretion and Cell Membrane Assembly. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly 219P. Cell surface growth with emphasis on the unicellular eukaryote S. cerevisiae. (F,SP) Schekman

239KK. Assembly and Subcellular Organization of Bacterial Organelles. (2) (F,SP) Kornell

239M. MicroRNA Functions in Cancer Development, Mouse Tumor Models. (2) Malignant transformation represents the endpoint of successive genetic lesions that confer uncontrolled proliferation and survival, unlimited replicative potential, and invasive growth. (F,SP) He

239N. Biophysics of Cell Motility and Morphogenesis. (2) Oster

239O. Cancer Biology. (2) Inheritance, chromatin structure, gene expression, and the organization of chromosomes in the nucleus. (F,SP) Karp

239Q. Regulation of Cell Polarity in Drosophila. (2) Mechanisms underlying the establishment and maintenance of cellular organization in epithelia and other cell types. (F,SP) Bilder

239S. Cellular Transport Processes. (2) Forte

239U. The Cytoskeleton and Morphogenesis. (2) Formerly 249Z. Review of current literature and discussion of current research.

239V. Molecular Mechanisms of Transduction in Touch and Pain Receptors. (2) Review of current literature and discussion of current research. Current research focuses on elucidating the molecular mechanisms of somatosensory mechanotransduction. (F,SP) Bautista

239W. Leech Embryology and Development. (2) Weisblat

239X. Malignant Transformation. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly 218C. Malignant transformation by retroviruses and the role of protein phosphorylation in growth regulation. (F,SP) Martin

239Z. Chromosome Remodeling and Reorganization During Meiosis. (2) How chromosomes are reorganized during meiosis to accomplish the pairing, recombination, and segregation leading up to successful gamete production. Demburg

Division of Genetics, Genomics, and Development

Lower Division Courses

410. Genetics and Society. (3) Students will receive 2 credit units and 2 lecture credits toward a total of 3 units awarded. One hour per week. Prerequisites: Consent of instructor. This course is for Molecular and Cell Biology graduate students. It will teach in-depth introduction to genetics, including mechanisms of inheritance, gene transmission, recombination, transposable DNA; genome structure, function, and regulation; and developmental genetics. Some exams may be given in the evening. Courses 140 and 241 are taught concurrently. Students enrolled in 241 will also be required to participate in a one-hour specialized discussion section per week, led by the course instructor. This section will cover methodological background and will be based on the primary literature of the field. (F,SP) Staff

240. Advanced Genetic Analysis. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C100A/Chemistry C130 or consent of instructor. Principles and practice of classical and modern genetic analysis as applied to eukaryotic organisms, including yeast, nematodes, Drosophila, mice, and humans; and additional topics in mutation, gene mapping; suppressor analysis; chromosome structure; control of gene expression; and developmental genetics. (F,SP) Amacher, Cline, Meyer

241. General Genetics Workshop. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course is for Molecular and Cell Biology graduate students. It will teach in-depth introduction to genetics, including mechanisms of inheritance, gene transmission, recombination, transposable DNA; genome structure, function, and regulation; and developmental genetics. Some exams may be given in the evening. Courses 140 and 241 are taught concurrently. Students enrolled in 241 will also be required to participate in a one-hour specialized discussion section per week, led by the course instructor. This section will cover methodological background and will be based on the primary literature of the field. (F,SP) Staff

C245. Mechanisms of Developmental Evolution. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing or upper division undergraduate with consent of instructor. Synthesis of modern research on the genetics of developmental evolution. Topics include: the origin of animals, the evolution of body plan, the role of transcriptional regulation in morphological evolution, and molecular evolution. Also listed as Integrative Biology C266. (F,SP) King, Levine, Pai

247. Genome Project Laboratory. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: Consent of instructor. The course will require the use of UNIX operating systems and simple computational tools for a comparative analysis of microbial genomes and determining relationships among bacteria, archaea, and microbial eukaryotes. Also listed as Plant and Microbial Biology C148. (SP) Bruner, Glass

Graduate Courses

B prefix=language course for business majors C prefix=cross-listed course H prefix=honors course *Professor of the Graduate School **Recipient of Distinguished Teaching Award

Molecular and Cell Biology / 375
of genome assembly, annotation, and analysis. They will be provided with unassembled output of automated DNA sequencers, and will produce a fully assembled and annotated genome by the end of the semester. Preference will be given to Molecular and Cell Biology graduate students. (SP) Brem, Eisen, Rokhsar

248. Advanced Genetics, Genomics, and Development. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing with 110 or 140 or consent of instructor. Three five-week sections covering the principles and practice of: (1) modern genetic analysis as applied to eukaryotic organisms, (2) developmental biology, and (3) genome sequence analysis. The course will focus on the essential concepts and intellectual underpinnings of these areas, with a particular emphasis on their interrelationships. Barnes, Levine, Rine

249. Research Review in Genetics and Development. Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Review of current literature and discussion of original research. (F,SP) Brem

249A. Genetics of Regulatory Variation. (2) Work in my group will focus on transcriptional regulatory networks and their variation between members of a species. (F,SP) Brem

249B. Metazoan Sex Determination. (2) Molecular and genetic aspects of Metazoan sex determination, with emphasis on Drosophila melanogaster. Cline

249C. Nucleic Acid-Protein Interactions and Control of Gene Expression. (2) Biochemical and molecular genetic aspects of eukaryotic messenger RNA splicing and transport, with an emphasis on Drosophila melanogaster as an experimental system. (F,SP) Rio

249D. Mechanisms of Genetic Regulation in Yeast. (2) Prerequisites: Consent of instructor. Genes, gene products and molecular mechanisms that control cell types in the unicellular eukaryote Saccharomyces cerevisiae. (F,SP) Rine

249E. Molecular Genetics of Drosophila. (2) Prerequisites: Consent of instructor. Gene regulation and development biology. (F,SP) G. Rubin

249F. Neuronal Development. (2) Molecular and genetic approaches to the problem of how neurons develop, using Drosophila melanogaster and Caenorhabditis elegans. (F,SP) Garriga

249G. Gene Expression in Drosophila. (2) Prerequisites: Consent of instructor. Formerly 234. Presentation and discussion of current research on gene regulation in Drosophila and other eukaryotes. (F,SP) Beckendorf

249H. Molecular Genetics of Insect Neuronal Development. (2) Prerequisites: Consent of instructor. Cell adhesion, cell recognition, and cell determination during neuronal development in Drosophila and other insects. (F,SP) Goodman

249J. Developmental and Molecular Genetics of C. elegans. (2) Prerequisites: Consent of instructor. Molecular and genetic analysis of sex determination and dosage compensation in the nematode C. elegans. (F,SP) Meyer

249K. Animal Origins. (2) Prerequisites: Consent of instructor. Evaluation of current research in human genetics, especially problems in human gene mapping. Intended to complement ongoing research for graduate students. (F,SP) King

249M. Saccharomyces Cerevisiae Microtubule Cytoskeleton. (2) Prerequisites: Consent of instructor. Review of current literature and discussion of current research. (F,SP) Barnes

249N. Gene Regulation. (2) Current literature and research in gene regulation will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field. (F,SP) Levine

249O. Genome Sequences. (2) Biochemistry, cancer biology and virology, cell biology, computational biology, genetics, microbiology, molecular and cell physiology. (F,SP) Eisen

249P. Mesenchymal Patterning and Segmentation. (2) Genetic, molecular, and embryological aspects of mesodermal patterning and segmentation, with emphasis on the vertebrate, zebrafish. (F,SP) Amacher

249Q. Computational Genomics. (2) Recent developments in computational methods for genomics and their application for understanding the structure and function of genes encoded in completely sequenced genomes. (F,SP) Brenner

249R. Mouse Development. (2) Prerequisites: Consent of instructor. The molecular and cellular mechanisms that underlie mouse development will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field. (F,SP) Skarnes

249S. Evolution of Development Mechanisms. (2) Evolution of development mechanisms with a focus on the genes that regulate segmentation and regionalization of the body plan. (F,SP) Patel

249T. Theoretical Modeling of Complex Biological Systems; Bioinformatics. (2) Theoretical modeling of complex biological systems; bioinformatics in genetics and development. (F,SP) Rokhsar

249U. Assembly of Eukaryotic Chromosomes. (2) Formerly 219A. Biochemical and genetic characterization of proteins that assemble histones onto DNA. Analysis of the relationship of chromatin assembly to DNA replication and gene expression. (F,SP) Kauhan

249V. Induction in Vertebrate Development and ES Cell Differentiation. (2) The Rhoelink laboratory is interested in the mechanisms of embryonic induction, the phenomenon in which a group of cells changes the developmental fate of neighboring cells via the release of inducers. (F,SP) Rhoelink

249W. Mechanisms of Gene Control in Vertebrate Animals. (2) This course focuses on mechanisms of gene control in vertebrate animals, particularly in the area of vertebrate development. Amphiban egg formation, mesoderm induction, neural induction, and patterning of the nervous system at the molecular level. Control of transcription, post-transcriptional control of gene expression (including control of RNA turnover and RNA localization). (F,SP) Harland

249X. The Cytoskeleton and Morphogenesis. (2) Prerequisites: Consent of instructor. Review of current literature and discussion of current research. (F,SP) Dubin

Division of Immunology

Lower Division Courses

50. The Immune System and Disease. (3) Students will receive no credit for 50 after taking 102 or C100A/Chemistry C130. Three hours of lecture and one hour of discussion per week. Prerequisites: High school chemistry or Chemistry 1A and high school biology or Biology 1A. Biology 1AL is not required. Course will discuss how the immune system responds, prevents, or causes disease. A general overview of the immune system will be covered in the first five weeks followed by five weeks discussing infectious diseases including anthrax, mad cow, herpes, malaria, tuberculosis, and HIV. In addition, other lectures will focus on current immunology topics including vaccines, autoimmunity, allergy, transplantation, and cancer. (F,SP) Beatty

55. Plagues and Pandemics. (3) Students will receive no credit for 55 after taking 100, C100A, 100B, 103, C103, 150, Chemistry C130, Plant and Microbial Biology C103, and Public Health C102. Three hours of lecture per week. Discussion of infectious agents that cause disease and impact society at large. We will examine historical and current examples of plagues and pandemics and consider the question of what we should do to ameliorate the impact of infectious disease in the future. The course is intended for non-majors and will begin by briefly providing necessary background in microbiology and immunology. The primary emphasis in each subsequent week will be on discussing a particular infectious disease. The course will be broad in scope covering biological, historical, ethical and social implications of each disease. (F) Beatty, Vance

Upper Division Courses

150. Molecular Immunology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C100A/Chemistry C130, or 102. Fundamentals of immunology with emphasis on emphasis on biochemical and molecular approaches to study of the immune system and its application in many fields of biology. Topics covered include description of the immune system, antibody and T-cell receptor structure and function, genes of the immunoglobulin superfamily, and cells and molecular mediators that regulate the immune response, allergy, autoimmunity, immunodeficiency, tissue and organ transplants, and tumor immunology. (F,SP) Shastri, Schlissel

150L. Immunology Laboratory. (4) Eight hours of laboratory and one hour of lecture per week. Prerequisites: 150. (F,SP) Shastri, Schlissel

Graduate Courses

250. Advanced Immunology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100, 110, 140, 150, or consent of instructor. Molecular and cellular analysis of the immune response, structure and function of antibody and T-cell genes including antibody-antigen reactions, principles of molecular recognition, recombination and regulation of antibody genes, and the immunoglobulin class switch; B cell differentiation, activation, and tolerance. Structure and function of T cell receptors and T-cell receptor genes; antigen processing and presentation, and role of MHC molecules in guiding T cells. T-cell receptor mediated, positive selection, and tolerance. Analysis of T cells, natural killer cells, and tumor surveillance. (F,SP) Raulet, Robey, Sha

251. The Regulation of Immune System Development and Function. (1) One hour and one hour of discussion. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 250 or consent of instructor. This is an advanced seminar course which will consider current research questions and experimental approaches in molecular and cellular immunology. Each registrant will present a 30-minute research talk describing the problems they are studying, the approach they are taking, their preliminary data, and technical problems. Other course participants (including basic immunology faculty) will provide criticism and suggestions. (SP) Schlissel

254. Cancer and Immunology. (2) Two hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly Microbiology 113. Emphasis will be on the treatment or prevention of cancer based on rational approaches derived from recent advances in tumor immunology. The course will examine the application of basic research in immunology to the applied studies in animal models and clinical trials. Introductory lectures by instructor followed by student presentations of original data and lectures by invited speakers engaged in translational and clinical research in tumor immunotherapy. Offered even-numbered years. (SP) Sha

259. Research Review in Immunology. Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis.
Presti C262. Advanced Topics in Systems Neuroscience. (3) Course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: 160 or equivalent. Advanced coverage of current research problems in systems-level neuroscience, and experimental and computational techniques used for these studies. Also listed as Neuroscience C262. Offered odd-numbered years. (SP) Staff

C263. Advanced Developmental Neurobiology. (3) Three hours of lecture per week. Prerequisites: 162 or equivalent. Advanced level coverage of current research problems in the embryonic and post-embryonic development of invertebrate and vertebrate nervous systems. Also listed as Neuroscience C263. Offered odd-numbered years. (SP) Staff

269. Research Review in Neurobiology. Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Review of current literature and discussion of original research. (F,SP)

269A. Special Topics in Neuroplasticity. (2) Molecular and cellular studies of nerve growth, axon guidance, synaptic formation, and synaptic plasticity using electrophysiological and optical imaging techniques. (F,SP) Poo

269B. Synaptic Transmission and Neuronmodulation. (2) (F,SP) Zucker

269D. Signaling Within and Between Neurons. (2) Review of recent research in molecular mechanisms involved in intracellular and extracellular signaling in the nervous system. (F,SP) Kramer

269E. Auditory Neuroscience. (2) (F,SP) Winer

269H. Recent Advances in Retinal Neurobiology. (2) (F,SP) Werblin

269J. Taste Recognition in Drosophila. (2) The molecular and cellular basis of taste perception in the model organism Drosophila melanogaster. (F,SP) Scott

269K. Protein Trafficking and Synapse Formation. (2) Molecular mechanisms of polarized protein trafficking and synapticogenesis in neurons. (F,SP) Chen

269M. Insect Neurophysiology. (2) Drosophila mutants that have behavioral abnormalities to unravel new basic features of nervous system structure and function. Tanouye

269Q. Sensory Processing and Plasticity in Cerebral Cortex. (2) How the cerebral cortex processes sensory input and stores information about the sensory world. We focus on the rat’s primary somatosensory (S1) cortex. (F,SP) Feldman

269R. Potassium Channels and Synaptic Plasticity. (2) (F,SP) Iasascov

269S. Molecular Mechanisms of Olfaction. (2) (F,SP) Ngai

269T. Processing of Visual Information in the Mammalian Brain. (2) (F,SP) Dan

269U. (2) Evaluation of current research in molecular mechanisms underlying the diseases of the retina. Flannery

269W. Neural Activity Affecting the Assembly of Neural Circuits. (2) How neural activity affects the assembly and maintenance of neural circuits. Felleman

All Divisions

Lower Division Courses

15. Current Topics in the Biological Sciences. (2) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. Prerequisites: Suitable for freshmen who plan to major in a biological science. Students in this course will critically examine modern methods of biological investigations and their social implications. Relevant literature will be used to present basic biological concepts that address the cultural, technological and health aspects of current topics in the biological sciences. Designing and evaluating scientific questions will be stressed. (SP) Kane

B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix=course satisfies R&Ac requirement
A prefix=satisfies course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
84. Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of seminar per week for 15 weeks. One and one-half hours of seminar per week for 10 weeks. Two hours of seminar per week for eight weeks. Three hours of seminar per week for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

90. Freshman Seminars. Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: Open to freshmen only. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP) Staff

90A. Biochemistry and Molecular Biology. (1)
90B. Cell and Developmental Biology. (1)
90C. Genetics and Development. (1)
90D. Immunology. (1)
90E. Neurobiology. (1)

91. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Two to four hours of seminar per week. Prerequisites: Open to freshmen and sophomores only. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments and in departments in departments to department and from semester to semester. (F,SP) Staff

91A. Biochemistry and Molecular Biology. (2-4)
91B. Cell and Developmental Biology. (2-4)
91C. Genetics and Development. (2-4)
91D. Immunology. (2-4)
91E. Neurobiology. (2-4)

C96. Studying the Biological Sciences. (1) Two hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Freshmen will be introduced to the “culture” of the biological sciences, along with an in-depth orientation to the academic life and the culture of the University as a science major in biology. Students will learn concepts, skills, and information that they can use in their major course, and as future professionals. Restricted to freshmen in the biology scholars program. Also listed as Plant and Microbial Biology C96 and Integrative Biology C96. (F) Matsui

98. Directed Group Study. (1-4) Course may be repeated for credit. One hour of lecture per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Freshmen and sophomores only. Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

99. Supervised Independent Study. (1-4) Course may be repeated for credit. One unit of credit is given for every three hours of work in the lab per week to a maximum of 4 units. Supervised research. Must be taken on a passed/not passed basis. Prerequisites: 3.3 GPA and consent of instructor. (F,SP) Staff

Upper Division Courses

180. Undergraduate Teaching of Biology 1A Laboratory. (1,2) Course may be repeated for a maximum of 4 units. Conference with instructor and teaching hours as assigned per week. Must be taken on a passed/not passed basis. Prerequisites: Biology 1A, 1AL with a minimum grade of B. Appointment as

a UGISI in biology by consent of instructor. Restricted to undergraduate students. Course consists of a weekly three-hour training session that focuses on laboratory techniques, instructional aids, and proctoring and problem solving, plus an additional three-hour weekly laboratory where the UGISI is required to assist a GSI in the instruction of laboratory (answering questions, providing demonstrations, etc.). (F,SP) Staff

H196A. Honors Research. (1-4) Individual laboratory research and experimental work. May be taken on a passed/not passed basis. Prerequisites: Senior honors status and consent of instructor. Individual research and thesis preparation under the supervision of a faculty member. Acceptance to the Molecular and Cell Biology Honors Program is required. Contact the MCB Undergraduate Affairs Office, 2083 Valley Life Sciences Building, for program details and application. Honor students must complete at least two semesters of research, taking a minimum of 4 units and a maximum of 8 units of H196A-196B. If desired, one semester of 199 can be used to replace H196A. (F,SP) Staff

H196B. Honors Research. (1-4) Individual laboratory research and conferences. Prerequisites: Senior honors status and consent of instructor. Individual research and thesis completion of thesis under the supervision of a faculty member. This course satisfies the thesis requirement for the Molecular and Cell Biology Department Honors Program. Contact the MCB Undergraduate Affairs Office, 2083 Valley Life Sciences Building, for program details and application. Honor students must complete at least two semesters of research, taking a minimum of 4 units and a maximum of 8 units of H196A-196B. One semester of H196B is required. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. One hour of lecture per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing. Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Enrollment restrictions apply; see the "Introduction to Courses and Curricula" section of this catalog. (F,SP) Staff

Graduate Courses

282. Tumor Biology Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 282. Reviews and reports of current research in tumor biology. (F) Firestone

290. Graduate Seminar. (1) Course may be repeated for credit. One to two hours of seminar per week. Prerequisites: Consent of instructor. Students present seminars on selected research topics in molecular and cell biology. Several sessions covering different topics offered each semester. Concurrent enrollment in more than one session is permitted. List of topics to be announced before each semester. (F,SP) Staff

291A. Introduction to Research. (2-12) Laboratory research, conferences. Credit and grade to be awarded on completion of sequence. Prerequisites: Consent of instructor. Students insuring experimental work under the direction of an individual faculty member; an introduction to experimental methods and research approaches in particular areas of molecular and cell biology. (F,SP) Staff

291B. Introduction to Research. (2-12) Laboratory research, conferences. Credit and grade to be awarded on completion of sequence. Prerequisites: 291A; consent of instructor. Closely supervised experimental work under the direction of an individual faculty member; an introduction to experimental methods and research approaches in particular areas of molecular and cell biology. (SP) Staff

292. Research. (3-12) Course may be repeated for credit. Laboratory research, conferences. Individual research under the supervision of a faculty member. (F,SP) Staff

293A. Research Seminar. (2) Three hours of seminar per week. Credit and grade to be awarded on completion of sequence. Prerequisites: Concurrent enrollment in 291A or 292. Seminar and evaluation of results in area of student's individual research interests. (F) Staff

293B. Research Seminar. (2) Three hours of seminar per week. Credit and grade to be awarded on completion of sequence. Prerequisites: Concurrent enrollment in 291B or 292. Seminar on presentation and evaluation of results in area of student's individual research interests. (SP) Staff

293C. Responsible Conduct of Research. (1) Course may be repeated for credit. One and one-half to two hours of case history discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. This course will cover topics in responsible conduct in research drawn from case studies of the Association of American Medical Colleges and the NIH. Students will review case studies in preparation for class discussion. Required of all MCB graduate and post doctoral students. This course is designed to assist graduate students in the biological sciences with planning their postgraduate careers. Weekly guest speakers will present their experiences on a variety of topics. Postdoctoral students may also participate. Topics may include: academia; job searches; setting up a laboratory; patent law/technology transfer; public policy/regulated affairs; bioinformatics; science writing/technical report; forensic science; postdoctoral positions in industry; teaching; and other topics of interest. (SP) Staff

297. Methods and Logic in Biology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: MCB graduate students. The focus of this course will be some of the papers in the scientific literature that provide the discoveries and methods critical to modern molecular and cell biology. Students will learn how to dissect published literature to evaluate the validity of results and the soundness of interpretations. The themes for the methods and logic course will be broadly applicable to all students interested in modern experimental biology. Students will meet and discuss these themes in a series of seminars, where they will participate in an in-depth dissection lead by the staff. (SP) Botchan, Meyer, Rine

601. Individual Study for Master's Students. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for master's degree. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive or language examinations in consultation with the faculty adviser. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Reading and conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Restriction to Ph.D. candidates. Individual study in consultation with the major field adviser. Intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff

Professional Courses

380. Teaching of Molecular and Cell Biology. (1-2) Course may be repeated for a maximum of 4 units. Weekly conference with instructor and teaching hours as assigned. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as graduate assistant in an instructor or contact the Molecular and Cell Biology Honors Program is required. Contact the MCB Undergraduate Affairs Office, 2083 Valley Life Sciences Building, for...
Music
(College of Letters and Science)

Major Advisers: Melissa Hacker and Lisa Robinson
Graduate Advisers: Composition, Professor Cox
History and Literature, Professor Smart
Ethnomusicology, Professor Gubault

Department Overview
The Department of Music fosters the cultivation of music on campus through undergraduate and graduate programs of study, and also public concerts and lectures in Hertz Hall, Morrison Hall, and elsewhere. For undergraduates, the department offers a major in music, as well as numerous non-major courses for the student looking for a leisurely experience in music. A minor in music draws courses on either majors or non-majors, depending on student qualifications. For graduate students the department offers programs leading to the M.A./Ph.D. or Ph.D. degrees in musical composition, history and literature, or ethnomusicology.

The department's theory courses provide an introduction to the materials of musical composition through ear training, harmony, counterpoint, and analysis. The history and literature courses present a survey of Western music and detailed study of the chief periods of its development. Courses in ethnomusicology examine the study of specific areas of world music, both in survey and in depth, and also provide an introduction to the principles and methods of research. Courses in performance (including orchestras, chorus, and various ensembles) offer the opportunities to perform a varied repertoire and are open by audition to all students and their instructions.

All students who wish to enroll in performance courses should consult the department web site for information on audition appointments at music.berkeley.edu/performance.

Note: Students who plan to major in music or take any of the courses designed primarily for music majors (40-79, 150-189) must complete the Music Placement Procedure, which is offered each semester the week before instruction begins. Go to music.berkeley.edu/degree for details. The exam may be taken on an advisory basis.

Prospective music majors are encouraged to begin the major program early, preferably in their freshman year. Staff advisers, as well as all members of the faculty, are available to consult with students interested in the music program.

The Center for New Music and Audio Technologies (CNMAT) provides computer music and interdisciplinary research in applications of computer technology to sound.

The Major
Goals of the Music Major:
• Through the total set of requirements for the major, gain knowledge of music in an integrated way, encompassing historical and cultural studies, musicianship and theory, and performance. This prepares students either to pursue a career in some aspect of music or to include music as an integral part of their lives.

• Cultivate musical competency, including literacy (the use of music notation in reading, performing, composing, analyzing, and hearing music).

• Develop skills of critical thinking and writing about music through courses on past and present musical cultures in European and other heritage cultures.

• Create music through performing and composing/improvising.

• Pursue individual interests by upper division elective course selection, including independent study and honors projects.

Lower Division:
• 49A, Introduction to Criticism
• 49C series (49B, 50, 51)
• Harmony series (49C, 60, 61)

History and Culture series: four courses from 74-77 as follows:
• 76 (18th and 19th centuries)
• 74 (topics in music of the world)
• 75 (music to 1700) or 77 (20th century)
• 75, 77, or another section of 74

Majors start their program with Music 49, an introductory course that combines critical listening (49A) with musicianship (49B) and harmony (49C). Students who place out of 49B or 49C must still take 49A at the beginning of their program.

Upper Division:
• One seminar from 170-189.
• A minimum of 21 additional units of music courses from 130-189 and other upper division music courses with a "M" suffix. Music must include at least three semesters of performance from 140-149 and/or 150A-H (excluding 150C). Please see department for approval.

Performance courses may be taken at any point in the student's career. Students are expected to shape their programs according to their particular interests, using the 21 units of music major electives, and, if they wish, additional courses from both within and outside the department. Suggested areas of specialization include composition, music of the world, Western music history, conducting, performance, improvisation, theory and analysis, computer science, and musicology. At least once a semester, students will consult with their advisers to discuss their programs.

Note: All courses taken for the major must be taken for a letter grade and receive a final grade of C or higher.
Honors Program. The Department of Music offers an individualized program leading to the B.A. degree with honors. Students with a GPA of 3.3 overall and 3.5 in the major may apply to enroll in the honors program in the last two semesters of their undergraduate study. Under course H195, students undertake a special project exceeding the scope of regular coursework for one or two semesters. Application forms with more detailed criteria for approval can be obtained from the department office and must be submitted by the end of the first week of classes in the semester in which the project is started.

The Minor

Lower Division:
- Musicianship 20A
- Either Musicianship 20B or Harmony 25A
- A survey course: 26AC or 27

Music major courses: (1) 49A, Thinking about Music; (2) 49B, Musicianship; and (3) 49C, Harmony may be substituted if the student has placed into 49B on the department musician exam. Course 49A must be taken concurrently with or before 49B. See the department web site for details.

Upper Division:
A minimum of five upper division music courses from 100-149 satisfying the following:
- At least one course must be from the 140 series, Performance Ensembles;
- At least one course must not be from the 140 series; and
- Courses that may be repeated for credit may count toward the minor a maximum of three times.

Upper division music major courses 151-189 may be substituted if the student has completed the prerequisites.

Note: All courses taken for the minor must be taken for a letter grade. All courses taken for the minor must be taken for a letter grade and receive a final grade of C or higher. At least three of the five upper division courses must be completed at Berkeley.

When students have satisfied the requirements, they should file a petition in the Department of Music office for confirmation that they have completed the minor program. They should bring a copy of their unofficial transcript.

Graduate Programs

The Department of Music offers programs leading to the M.A., Ph.D. and Ph.D. degrees in composition and musicology, the latter with options in the history and literature of Western music and ethnomusicology (not in music education or performance). Applications for admission are considered only once a year; the fall semester; the application deadline is December 15.

Lower Division Courses

20A-20B. Basic Musicianship. (2,2) Three hours of lecture per week. Prerequisites: 20A is a prerequisite to 20B. Fundamentals of music, including notation, sight singing, ear training, and beginning linear analysis. For general students. (F,SP)

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

25A-25B. Introduction to Music Theory. (3,3) Three hours of lecture per week. Prerequisites: 20A or other basic musicianship course or consent of instructor. A writing course based on traditional harmony. Beginning linear and vertical analysis. For general students. Emphasis on written exercises.

25B-25C. Introduction to Music Theory. (3,3) Three hours of lecture per week. Prerequisites: 20A or consent of instructor. A writing course based on traditional harmony. Linear and vertical analysis. For general students. Emphasis on written exercises.

26A. Music in American Culture. (4) Two hours of lecture, one hour of discussion, and one hour of listening per week. Two perspectives are developed: (1) diverse music of groups in America, and (2) American music as a unique phenomenon. Groups considered are African, Asian, European, Hispanic/Latino, and Native American. Lectures and musical examples are organized by topics, such as music of socio-economic subgroups within large groups, survival of culture, pan-ethnicity, religious and concert music, and the folk-popular music continuum. This course satisfies the American Cultures requirement. (F,SP)

27. Introduction to Western Music. (4) Two hours of lecture and one hour of discussion per week. Devoted to the development of listening skills, and a survey of major forms and types of Western art music. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/neutral/failed basis. Prerequisite: Prior given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

40. Group Carillon Lessons for Beginning Students. (1) May be repeated once for credit. One hour of private lesson per week. Prerequisites: 41A, 41B, or consent of instructor. A course designed for students who wish to attain a beginner’s level of proficiency on the carillon. Prospective students must have a working knowledge of the keyboard, read treble and bass clefs fluently, be secure in key signatures through three sharps and flats, and be comfortable with common duple and triple meters. (F,SP) Davis

41A. Private Carillon Lessons for Beginning Students. (1) Course may be repeated for a maximum of six units as long as a B average is maintained. One-half hour lesson per week, one 10-minute concert each week, plus participation in the student recital. Prerequisites: 41A or consent of instructor. 

41B. Private Carillon Lessons for Intermediate Students. (1) Course may be repeated for a maximum of six units as long as a B average is maintained. One-half hour lesson per week, one 10-minute concert each week, plus participation in the student recital. Prerequisites: 41A or consent of instructor. A course designed for students to reach an advanced level of proficiency. Students are required to play one 10-minute concert per week, plus participate in the student recital.

41C. Private Carillon Lessons for Advanced Students. (2) Course may be repeated for a maximum of six units as long as a B average is maintained. One hour of private lesson per week, one 10-minute concert per week, plus participation in the student recital. (F,SP) Davis

42. Carillon Lessons for Advanced Students. (2) Course may be repeated for a maximum of six units as long as a B average is maintained. One hour of private lesson per week, one 10-minute concert per week, one hour of student recital per semester, and participation in the student recital. Prerequisites: 41A, 41B, or consent of instructor. This course is a requirement for those students who are studying the carillon under the direction of the Guild of Carillonneurs in North America. (F,SP) Davis

43. Introduction to Improvisation. (3) Three hours of lecture per week. Prerequisites: 20A or equivalent and audition. This course will serve as an introduction to performance practices in contemporary improvisation. Several approaches to improvisation will be presented including African American jazz and blues traditions, North Indian Raga, gaming strategies, graphic notation, and conducted improvisation or “sound painting.” Class activities include improvisation exercises and games and repertoire development. Assignments will include listening to and analysis of recorded and live performances and the creation of student works. (F,SP)

49A. Thinking about Music. (2) Two hours of lecture per week. Prerequisites: Department placement exam; 49B-49C (to be taken concurrently). Introduces prospective music majors to basic forms and genres of many musics, drawn from the repertoires of Western Europe, America, and other world cultures. Explores ideas and concepts that shape the interpretation and the formal analysis of music. Repertory drawn from a reserve of circa 100 pieces available for study on the department’s digital music library. (F,SP)

49B. Musicianship. (3) Three hours of lecture per week. Prerequisites: Music Placement Examination. Formerly 50A. Diatonic sight singing, ear training, and keyboard harmony. (F,SP)

49C. Harmony. (3) Three hours of lecture per week. Prerequisites: Music Placement Examination. Formerly 50B. Advanced diatonic harmony, chordal harmonization, and analytical studies. Emphasis on written exercises. (F,SP)

50. Musicianship. (3) Three hours of lecture per week. Prerequisites: Advanced placement in Music Placement Exam. 49B, or 50A. Formerly 50B. Continuation of 49A. Sight singing, ear training, keyboard harmony, and score reading involving increasing chromatism. (F,SP) Staff

51. Musicianship. (3) Three hours of lecture per week. Prerequisites: Advanced placement in Music Placement Exam or 50. Formerly 51A. Sight singing, ear training, keyboard harmony, and score reading involving increasing chromatism. (F,SP) Staff

60. Harmony. (3) Three hours of lecture per week. Prerequisites: Advanced placement in Harmony Placement Exam, 49C, or 60A. Formerly 60B. Advanced diatonic harmony, modulation, altered chords, chordal harmonization, and analytical studies. Emphasis on written exercises. (F,SP)

61. Harmony. (3) Three hours of lecture per week. Prerequisites: Advanced placement in Harmony Placement Exam or 60. Formerly 61A. Advanced diatonic harmony, advanced modulation, altered chords, chromatic harmony, and analytic studies. Emphasis on written exercises. (F,SP)

74. Introduction to Selected Musics of the World. (4) Course may be repeated for credit. Three hours of lecture and one hour of performance laboratory per week. Focus on performance practice, forms, styles, instruments, and meanings of particular musics from an ethnomusicological perspective. The musics to be studied can be seen in the 130 series for specific course descriptions. Alternative lower division course numbering for lower division majors enrolling in the 130 series. This course will meet lower division major requirement. (F,SP) Brinner, Guibault, Wade

75. History of Western Music: Music to 1700. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Department placement examination. 49C (may be taken concurrently). Formerly 171A. Studies in Medieval and Renaissance music. An introduction to music literature, criticism, and practice in analytical methods for music of all periods, with emphasis on listening, exercises, and papers. (SP)
108M. Music Perception and Cognition. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Consent of instructor. Formerly 115. A review of the sensory, perceptual, and cognitive foundations of listening, composing, and performing. Topics include: relations among various acoustical and perceptual characterizations of sound; perception of pitch, timbre, and duration; stability concept and auditory space; auditory scene analysis and perceptual grouping mechanisms; perceptual principles for melodic, rhythmic, and harmonic organization; orchestration as an aesthetic composition. A course research project is required.

108M. Music Perception and Cognition. (4) Three hours of lecture and two hours of laboratory per week. Formerly 115. A review of the sensory, perceptual, and cognitive foundations of listening, composing, and performing. Topics include: relations among various acoustical and perceptual characterizations of sound; perceptions of pitch, time, temporal relations, timbre, stability conditions, and auditory space; auditory scene analysis and perceptual grouping mechanisms; perceptual principles for melodic, rhythmic, and harmonic organization; orchestration as spectral composition. The course research project should include the analysis of musical examples or perceptual and cognitive issues in music theory or both.

116A. Jazz Theory and Performance 1. (3) Students will receive no credit for 116A after taking 116B or 116M. Three hours of lecture and one hour of studio per week. Prerequisites: Audition. Formerly 116A. A systematic study of jazz theory including scales, chords, keyboard voicings, solo transcription, and tune study approached through playing, singing, listening, writing, improvisation, analysis, and small ensemble playing. (F,SP) Dana

116AM. Jazz Theory and Performance 1. (3) Students will receive no credit for 116AM after taking 116B or 116M. Three hours of lecture and one hour of studio per week. Prerequisites: Audition. Formerly 116A. A systematic study of jazz theory including scales, chords, keyboard voicings, solo transcription, and tune study approached through playing, singing, listening, writing, improvisation, analysis, and small ensemble playing. (F,SP) Dana

116B. Jazz Theory and Performance 2. (3) Two hours of lecture and three hours of studio per week. Prerequisites: 116, 116M, 116A, or 116AM, or consent of instructor; Audition. Advanced concepts in theory and performance in the jazz vernacular tradition, including melodic minor and diminished chords and scales, reharmonization, I Got Rhythm changes, Coltrane changes, use of pentatonic and 4ths, playing outside, solo analysis, and the introduction to jazz arranging and composition. Activities will include short writing and playing exercises, transcription and analysis, historical and analytical readings, arranging and composition projects for small ensemble, and three hours of small ensemble rehearsal each week. (F,SP) Dana

116BM. Jazz Theory and Performance 2. (3) Two hours of lecture and three hours of studio per week. Prerequisites: 116, 116M, 116A, or 116AM, or consent of instructor; Audition. Advanced concepts in theory and performance in the jazz vernacular tradition, including melodic minor and diminished chords and scales, reharmonization, I Got Rhythm changes, Coltrane changes, use of pentatonic and 4ths, playing outside, solo analysis, piano voicings, and an introduction to jazz arranging and composition. Activities will include short writing and playing exercises, transcription and analysis, historical and analytical readings, arranging and composition projects for small ensemble, and three hours of small ensemble rehearsal each week. (F,SP) Dana

128. Topics in the History of European and American Music. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 27 or consent of instructor. For non-majors. A comparative study of different genres and composers in Western music. Topic will vary each semester. (F,SP) Staff

128A. Opera. (3) Three hours of lecture per week. Prerequisites: 27 or consent of instructor. A study of musical and dramatic aspects of opera. Lectures on selected operas will be supplemented by assigned recordings and films or videotapes of notable performances.

128AM. Opera. (3) Three hours of lecture per week. Prerequisites: 61B and 75 or 76. Restricted to music majors. A study of musical and dramatic aspects of opera. Lectures on selected operas will be supplemented by assigned recordings and films or videotapes of notable performances. (F,SP) Staff and a term paper required.

128B. Beethoven. (3) Three hours of lecture per week. Prerequisites: 27 or consent of instructor. Emphasis on the symphonies.

128C. Contemporary Music. (3) Three hours of lecture per week. Prerequisites: 27 or consent of instructor. Twentieth century music, from Stravinsky to the present. (F,SP)

128D. J. S. Bach. (3) Three hours of lecture per week. Prerequisites: 27 or consent of instructor. An introduction to the music of J. S. Bach (1685-1750), a central figure in the history of Western art music. The course includes discussion of his organ music, harpsichord works, cantatas, Passion settings, and instrumental chamber music, discusses the relationship between Bach's biography and his compositions, and places study of the music in its cultural and historical context. Required work will include one short paper and one longer paper. There will also be weekly reading and listening assignments. (F,SP) Moroney

128DM. J. S. Bach. (4) Three hours of lecture per week. Prerequisites: Restricted to music majors. An introduction to the music of J. S. Bach (1685-1750), a central figure in the history of Western art music. The course includes discussion of his organ music, harpsichord works, cantatas, Passion settings, and instrumental chamber music, discusses the relationship between Bach’s biography and his compositions, and places study of the music in its cultural and historical context. Required work will include one medium-length paper, one longer research paper, and one analytical study. There will also be weekly reading and listening assignments. (F,SP) Moroney

128G. The European/American Art Song. (3) Three hours of lecture per week. Prerequisites: 27 or consent of instructor. A study of song and the interaction of poetry and music, from late 18th through the 20th century, with texts in English, German, French, and Italian translation. Composers ranging from Mozart and Schubert to Gershwin and Bernstein will be included, with occasional live performances by local artists.

128S. Topics in Improvised Music. (3) Three hours of lecture per week. Prerequisites: Concurrent with 128AM after taking 128A. Three hours of lecture per week. Prerequisites: Restricted to music majors; 51B and 61B. Advanced concepts in theory and performance in the jazz vernacular tradition, including melodic minor and diminished chords and scales, reharmonization, I Got Rhythm changes, Coltrane changes, use of pentatonic and 4ths, playing outside, solo analysis, piano voicings, and the introduction to jazz arranging and composition. Activities will include short writing and playing exercises, transcription and analysis, historical and analytical readings, arranging and composition projects for small ensemble, and three hours of small ensemble rehearsal each week. (F,SP) Dana

132. Music of the Middle East. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Restricted to music majors: 51B and 61B. Historical and analytical study of African American music in the 20th century. Emphasis on the evolution of jazz and various forms of popular and religious music.

132BM. African American Music. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Restricted to music majors: 51B and 61B. Includes the classical music traditions of both North and South India (Hindustani and Karnatak music). Emphasis on class listening. (F,SP)

132. Music of the Middle East. (4) Three hours of lecture and one hour of laboratory (devoted to playing Balinese Gamelan music) per week. Music of the Middle East, including folk, art, popular, and religious music of the Pan-Islamic and Islamic traditions. Brinner

133C. Music and Theater in Southeast Asia. (4) Three hours of lecture and one hour of laboratory (devoted to playing Javanese Gamelan) per week. Formerly 133A. Surveys musical traditions of Indonesia and mainland Southeast Asia with special emphasis on Java and Bali and the central role of music in the cultures of the two countries.

133D. Music of Central Java. (4) Three hours of lecture and one hour of laboratory (devoted to playing the Javanese Gamelan) per week. In-depth study of the Central Javanese gamelan tradition, including performance contexts, repertoire, vocal and instrumental
idioms, modal practice and improvisation in current practice and in historical perspective.

134A. Music of the East Asia Tradition. (4) Three hours of lecture and one hour of laboratory per week. Surveys the musics of China, Tibet, Korea, Vietnam, and Japan. Courses which share instrument types but have developed distinctive musical styles.

134B. Music of Japan. (4) Three hours of lecture and one hour of laboratory per week. Classical musical practice of Japan: Shinto ritual music, the imperial court orchestral music and dance, shakuhachi, shamisen and koto, theatrical genres of kabuki and noh. Reading in music and pertinent Japanese literature in translation.

C134C. Sonic Culture in China. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 7A or 7B, and 116A, or permission of instructor. Chinese literature and culture, or music. This course explores the aesthetics and politics of sound—both musical and otherwise—in Chinese cultures. Through music and musics of the Chinese civilization, we will trace the ways in which sound has been produced, heard, understood, and debated in both pre-modern and modern China. Topics include Confucian musical theory, Daoist hermeneutics, music, and poetry; the impact of recording technology and Western music; urban popular musics, sound and cinema, and contemporary soundscapes. Also listed as Chinese C184.

135A. Musics of the Caribbean. (4) Three hours of lecture and one hour of laboratory per week. Focus on the history, history of the Caribbean and of the music and role of the music in political, economic, and cultural roles of selected traditional and popular musical genres of the Caribbean.

139. Topics in Musics of the World. (4) Course may be repeated for credit. Three hours of lecture and one hour of laboratory per week. Surveys the music of different cultures. The particular culture to be studied will vary. (F,SP)

140. Javanese Gamelan. (2) Course may be repeated for credit. Four hours of rehearsal per week. Performance of modern Indonesian music for credit. Four hours of rehearsal per week. Surveys the music of different cultures. The particular culture to be studied will vary. (F,SP)

141. University Symphony Orchestra. (2) Course may be repeated for credit. Four hours of rehearsal per week. Prerequisites: Audition. May be taken for credit or audited. (F,SP) Milnes

142. University Wind Ensemble. (2) Course may be repeated for credit. Four hours of rehearsal per week. Prerequisites: Audition. This course for the study and practice of traditional and contemporary wind band repertoire. (SP) Calonico

143. Gospel Chorus. (2) Course may be repeated for credit. Three hours of large ensemble and one hour of sectional per week. A course that will focus on the performance of contemporary interpretive African-American gospel music with a particular emphasis on contemporary performance techniques. The Gospel Chorus, as is the case with other formal University music performance ensembles, will prepare music to be presented to the public in at least two concerts each semester. Students will be selected for the chorus on the basis of individual auditions. (F,SP) Staff

C143. Gospel Chorus. (2) Course may be repeated for credit. Three hours of large ensemble and one hour of sectional per week. A course that will focus on the performance of choral music of the African-American gospel music tradition with a particular emphasis on contemporary performance techniques. The Gospel Chorus, as is the case with other formal University music performance ensembles, will prepare music to be presented to the public in at least two concerts each semester. Students will be selected for the chorus on the basis of individual auditions. Also listed as African American Studies C145. (F,SP) Henderson

144. University Chorus. (2) Course may be repeated for credit. Three hours of rehearsal and one hour of sectional per week. Prerequisites: Audition. The University Chorus performs music primarily from the 17th to the 20th centuries, including works for chorus and orchestra. (F,SP) Kuzma

145. University Chamber Chorus. (2) Course may be repeated for credit. Four hours of rehearsal per week. Prerequisites: Audition. A smaller mixed chorus of at least 18 alumni of the ensemble singing and explores the lesser-known choral repertoires. (F,SP) Kuzma

147. Contemporary Improvisation Ensemble. (2) Course may be repeated for credit. Three hours of rehearsal and one hour of preparation per week. Prerequisites: 43, 116A, and 116AM, or equivalent, and auditions. This is an intermediate-advanced repertoire ensemble performing music that incorporates experimental practices in contemporary improvised music. The program involves several practice approaches. We will work on traditionally notated scores, as well as graphic notation and other structures. We will also look at game pieces, such as John Zorn’s Cobra, pieces by the graduate composers, and music using various conducting techniques for focusing ensembles of improvisers. All instruments welcome, including electronic and non-Western. (SP) Melford

148. African Music Ensemble. (2) Course may be repeated for credit. Four hours of rehearsal per week. Performance of West African music with particular emphasis on the music of Ghana. Practical instruction in traditional instrumental and vocal techniques. (F,SP) Ladjèko

149. University Baroque Ensemble. (2) Course may be repeated for credit. Four hours of rehearsal per week. Performance of Renaissance and Baroque music for voices and instruments.

150A. Instrumental Performance. (3) Course may be repeated for credit. Must be taken for letter grade. Four hours of studio per week. Prerequisites: Music majors only. By audition, for experienced performers of orchestral instruments. A directed program of study including participation in the University Symphony or other designated groups in the University, work-shops, and in special projects. Will include instruction and/or coaching, individually or in groups. Each student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance. (F,SP) Liderman

150B. Vocal Performance. (3) Course may be repeated for credit. Must be taken for letter grade. Four hours of studio per week. Prerequisites: Music majors only. By audition, for experienced vocalists. A comprehensive program of vocal studies including participation in University Choruses, vocal technique training, and ensemble work with other instrumentalists or vocalists. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance. (F,SP) Milnes

150C. Keyboard Performance. (2) Course may be repeated for credit. Four hours of studio per week. Prerequisites: Music majors only. By audition, for experienced performers of keyboard or related instruments. The program will focus on the study of solo repertoire. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance. (F,SP) Kuzma

150D. Various Musical Practices Performance. (3) Course may be repeated for credit. Must be taken for letter grade. Four hours of studio per week. Prerequisites: Music major only. By audition. Intermediate or advanced instruction in musical practices not encompassed in 150A-150B-150C, within the context of a cavalier academic program of study. Students must have experience on the instrument or have studied it in the 130 series. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance. (F,SP) Brinner

150E. Jazz Performance. (1-3) Course may be repeated for credit. Three to nine hours of practice/lessons/ensemble per week. Prerequisites: Open to music majors by audition only. Intermediate or advanced instruction in the performance of jazz and improvisation. Directed program of study in department-sponsored or UC jazz ensembles, workshops, and special projects where applicable. Will include instruction and/or coaching, individually or in groups. Each student's studies will lead to some kind of public performance. The student's program will be worked out in consultation with the faculty in charge of the course. Units range from 1 to 3, depending on the number of lessons and ensemble participation. (F,SP) D'Alimonte

150F. Ensemble Work for Keyboard Players. (1) Course may be repeated for credit. Minimum of one hour of studio per week. May be repeated for credit if student maintains B average. Prerequisites: Music majors only. By audition, for keyboard performers. This course will be devoted to the various skills of keyboard performance that do not involve the solo repertoire. These include, but are not limited to: piano accompaniment for student ensembles. Each of these topics will normally be studied for one full semester (each time at the student's choice but in consultation with the faculty). Each student's study will normally lead to some kind of public performance. (F,SP) Rosenak

150G. Guitar Performance. (2) Course may be repeated for credit. Minimum of two hours of studio per week. Prerequisites: Music majors only. By audition, for experienced guitar performers. The program will include ensemble work in addition to the study of solo repertoire. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance. (F,SP) Liderman


152. Advanced Musicanship. (3) Three hours of class per week. Prerequisites: 51, 61, and 405D. Course will develop the skills acquired in the music 101 series, with an emphasis on score reading skills (including use of the voice) and the realization of Baroque figured bass lines. Increased emphasis on 20th-century and contemporary practice. Staff

154A. Counterpoint. (3) Three hours of lecture per week. Prerequisites: 61, 151 recommended. A study of species counterpoint. Regular exercises in two and three voices required. Group discussion and analysis. (F)

154B. Counterpoint. (3) Three hours of lecture per week. Prerequisites: 61, 151 recommended. A study of species counterpoint. Regular exercises required. Analysis of chorale preludes, two- and three-part inventions, canons, and fugue expositions. (SP) Staff

155. Music Composition. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 61, 151 and 154A recommended. A study of formal problems using contemporary composition techniques. (F,SP) Staff

156. Studies in Musical Analysis. (3) Three hours of lecture per week. Prerequisites: 61, 151, and 154A. The study of various analytical techniques and their applications to the works of music.
Three hours of lecture per week. Prerequisites: 61, 76 or consent of instructor. A study of the four operas of Wagner’s Ring cycle.

173D. Schubert to Bruckner. (3) Three hours of lecture per week. Prerequisites: 60 and 76 or consent of instructor: 61 recommended. A study of symphonic and chamber works selected from the tradition of German instrumental music that led through Schubert and Schumann.

173F. Verdi and Wagner. (3) Three hours of lecture per week. Prerequisites: 60 and 76 or consent of instructor: 61 recommended. A study of the contrast styles represented by Verdi and Wagner, approached through selected operas, literary works, and the composers’ writings.

174A. Debussy and Mahler. (3) Three hours of lecture per week. Prerequisites: 61 (may be taken concurrently) and 76 or consent of instructor. A comparison of selected works of Debussy and Mahler.

174C. Stravinsky. (3) Three hours of lecture per week. Prerequisites: 60 and 76 or consent of instructor: 61 recommended. A study of the composers’ writings. The specific topic covered will change each semester.

174F. Verdi and Wagner. (3) Three hours of lecture per week. Prerequisites: 60 and 76 or consent of instructor: 61 recommended. A study of the four operas of Wagner’s Ring of the Nibelung.

175. Music / 383

Overview of the German instrumental music that led through Schubert and Schumann. A study of the basic elements of conducting: physical gesture, score reading, and score analysis. Development of skills with emphasis on conducting and rehearsal techniques applicable to orchestral literature in various languages and musical styles. Preparation of selected works for rehearsal and performance in class. Should be taken in a two-semester sequence. (F,SP)

197. Field Studies. (1-3) Course may be repeated for credit. Three hours of fieldwork per week. Prerequisites: Consent of instructor. Designed for graduate students in music composition. Fieldwork may involve experiences related to the application of newer technologies to composition with students and contemporary research topics in computer music. Recent computer music repertoire with its related technologies will be examined. Students in this prosemiar must have advanced knowledge of the history and repertoire of electro-acoustic music. (F) Campion

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Three hours of fieldwork per week. Prerequisites: Consent of instructor. Individual tutorials leading to the completion of a special honors project. (F,SP)

199. Special Study for Honors Candidates in Music. (4) Course may be repeated for credit. Independent study. Prerequisites: Restricted to seniors with a GPA of 3.0 or better in the major. Consent of instructor and Department Honors Committee. Individual tutorials leading to the completion of a special honors project. (F,SP)

197. Field Studies. (1-3) Course may be repeated for credit. One to three hours of fieldwork per week. Must be taken on a pass/not pass basis. Pre requisites: Music major. Department organized and supervised field programs involving experiences in tutoring and related activities. Students taking the course for the first time will be provided with training suitable to the subject matter being tutored. (F,SP) Staff

189. Topics in Research and Performance. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 60 and 76 or consent of instructor: 61 recommended. A seminar for upper division music majors. The specific topic covered will change each semester. Class time will be divided equally among: (1) historical and analytical readings; (2) discussion and analysis of recorded and live performances; (3) in-class performances by the students. The first project will combine scholarly work and performance in the form of a lecture-recital or collaborative creative project.

189. Topics in Research and Performance. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 60 and 76 or consent of instructor: 61 recommended. A seminar for upper division music majors. The primary purpose of this course is to create an environment in which students can combine the research and analysis of music with live performance. The specific topic covered will change each semester. Class time will be divided equally among: (1) historical and analytical readings; (2) discussion and analysis of recorded and live performances; (3) in-class performances by the students. The first project will combine scholarly work and performance in the form of a lecture-recital or collaborative creative project.

199. Special Study for Honors Candidates in Music. (4) Course may be repeated for credit. Independent study. Prerequisites: Restricted to seniors with a GPA of 3.0 or better in the major. Consent of instructor and Department Honors Committee. Individual tutorials leading to the completion of a special honors project. (F,SP)

197. Field Studies. (1-3) Course may be repeated for credit. Three hours of fieldwork per week. Prerequisites: Consent of instructor. Designed for graduate students in music composition but open to graduate students in related disciplines who can demonstrate thorough knowledge of the history of electro-acoustic music, as well as significant experience with computer music practice and research. All projects are subject to approval of the instructor. (F,SP) Campion

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Four hours of supervised field programs involving experiences related to the application of newer technologies to composition with students and contemporary research topics in computer music. Recent computer music repertoire with its related technologies will be examined. Students in this prosemian must have advanced knowledge of the history and repertoire of electro-acoustic music. (F) Campion

204. Studies in Musical Analysis. (4) Course may be repeated for credit. Three hours of seminar per week. Principles and methods of scholarly research in Western art music, especially history and criticism of use of documents, and design of projects. Presentation of results in written and oral forms. (F)

200C. Introduction to Music Scholarship III. (4) Three hours of seminar per week. Principles and methods of scholarly research in Western art music, especially history and criticism of use of documents, and design of projects. Presentation of results in written and oral forms. (F)

200A. Music Scholarship I. (2-4) Three hours of seminar per week. Principles of music bibliography, techniques of library research, history of music printing and publishing. Presentation of results in written and oral forms. Students in this course will take the first half of the course for 2 units. Students in history and literature will take the entire course for 4 units. (F)

201A. Proseminar in Computer Music. (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: Consent of instructor. Overview of the field of computer music and its application to music composition. Practices, procedures, and aesthetics related to the application of newer technologies to composition with students and contemporary research topics in computer music. Recent computer music repertoire with its related technologies will be examined. Students in this prosemian must have advanced knowledge of the history and repertoire of electro-acoustic music. (F) Campion


203. Seminar in Composition. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Limited to advanced students of composition. A study of relevant problems and compositional techniques of contemporary music. Original compositions required of students. Group discussion and criticism. (F,SP)

204. Studies in Musical Analysis. (4) Course may be repeated for credit. Three hours of seminar per week. The application of analytical principles to a group of compositions and the intensive study of at least one major work.

205. Fugue. (4) Three hours of class per week. Prerequisites: 154B. A study of subjects, answers, countersubjects, expositions, episodes and stretti, leading to the writing of complete fugues. Regular written assignments required.

207. Advanced Projects in Computer Music. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Designed for graduate students in music composition but open to graduate students in related disciplines who can demonstrate thorough knowledge of the history of electro-acoustic music, as well as significant experience with computer music practice and research. All projects are subject to approval of the instructor. (F,SP) Campion

208A. Advanced Music Perception and Cognition. (3) Course may be repeated for credit. Three hours of seminar per week. Experimental studies in music perception and cognition. Research projects required.

209. Advanced Topics in Computer Music. (4) Course may be repeated for credit. Three hours of seminar per week. Technical and musical issues in the design and development of computer-based music systems including digital signal processing for the analysis and synthesis of sound, scheduling of multiple musical control processes, perceptual and cognitive models, user-interaction and real-time control, and the analysis and representation of musical structure.

210. A Multi-Disciplinary Graduate Seminar for Composers, Improvisers, and Artists of Diverse Media. (4) Course may be repeated for credit. Three hours of seminar per week. Study of contemporary musical and computer music technology. Prerequisites: prior coursework in music composition and/or music technology. (F,SP) Campion
hours of seminar per week. Prerequisites: By audition or consent of instructor. This course will serve as a weekly forum to explore and engage in the rich possibilities of ensemble strategies for creating multidisciplinary work through the use of improvisation. Weekly activities include exploration of improvisation techniques across disciplines and the study of existing multidisciplinary work that have incorporated improvisation either in the process of creating the work and/or in the final product. Each student will work on a project that culminates in a final performance or installation. Collaboration is encouraged. Course is open to graduate students in music composition, dance, theater and performance studies, new media, creative writing, visual art, film, and video. (F,SP) Melford

213. Seminar: Studies in the 16th Century. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized course in 16th-century music. The topic will change each time the course is offered.

214. Musical Applications of CNMAT Technologies. (1) Six hours of lecture/practical laboratory per week for two weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. This hands-on course will expose students to musical tools developed by the Center for New Music and Audio Technologies (CNMAT). Topics include performance and formal applications pertinent to CNMAT, including sound synthesis and diffusion, high-level control, and network applications. (F,SP)

216. Seminar: Studies in Baroque Music. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized course in Baroque music. The topic will change each time the course is offered.

217. Seminar: Studies in Classical Music. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized course in Classical music. The topic will change each time the course is offered.

218. Seminar: Studies in Romantic Music. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized course in Romantic music. The topic will change each time the course is offered.

219. Seminar: Jazz. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized course in Jazz. The topic will change each time the course is offered.

220. Topics in Music History and Criticism. (4) Course may be repeated for credit. Three hours of seminar per week. A specialized course in musical criticism. The topic will change each time the course is offered.

240. Historical Readings in Ethnomusicology. (4) Three hours of seminar per week. Formerly 230. Critical analysis of historical sources for ethnomusicological research and focus on the historical construction of the musical “Other.” Brinner, Guilbault, Wade

241. Readings in American Musical Cultures. (4) Three hours of seminar per week. Formerly 231. Study of selected American musical cultures in relation to issues and theories pertinent to them.

242. Ethnomusicology Analysis Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Prerequisites: Consent of instructor. Critique of published analyses and approaches to analysis in various musical traditions. Students present analyses based on their individual areas of specialization.

243. Transcription and Analysis in Ethnomusicology. (4) Three hours of seminar per week. Formerly 234. Method and practice of transcription applied to selected musical practices in relation to specific analytical goals. Coursework includes use of software for sound analysis and notation.

244A. Tools of Ethnomusicological Research. (4) Three hours of seminar per week. Collection and organization of research data. Introduction to audio and video recording, photography, database design, interviewing, and writing fieldnotes.

244B. Research Design for Ethnomusicologists. (4) Three hours of seminar per week. Prerequisites: 244A or consent of instructor. In designing a doctoral dissertation prospectus and formulating a grant proposal. Focus also on issues such as representation and ethics. Students will normally take this course one semester prior to presenting the prospectus for their doctoral dissertation.

246. Theory and Method in Popular Music Studies. (4) Three hours of seminar per week. Critical survey of the major issues raised and methodologies adopted in the field of popular music. Selected readings from a wide range of disciplines, including sociology, anthropology, musicology, ethnomusicology, communication, history, political science, economics, and music journalism.

247. Topics in Ethnomusicology. (4) Course may be repeated for credit. Three hours of seminar per week. Formerly 232. A highly specialized course in ethnomusicology. The topic will change each time the course is offered.

248A. Topics in Asian Music. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Formerly 264. A highly specialized course focusing on aspects of music in Asia. The topic will change each time the course is offered.

249. Interpretive Theories and Music. (4) Course may be repeated for credit. Three hours of seminar per week. Readings on interpretive theories dealing with issues such as aesthetics, identity formation, and politics of representation, from the multiple disciplines informing the study of music. The selection of theoretical writings will change each time the course is offered.

296. Directed Dissertation Research—Music. (1-12) One to twelve hours of independent study per week. Must be taken on a satisfactory/unsatisfactory basis. Open to qualified students who have been advanced to candidacy for the Ph.D. and are directly engaged upon the doctoral dissertation. (F,SP) Staff

298. Group Special Studies. (1-8) Course may be repeated for credit. Meetings to be arranged according to units taken. Open to qualified students for research or creative work on a particular topic. Not to serve in lieu of regular courses of instruction. (F,SP) Staff

601. Individual Study for Master’s Students. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for master’s degree. Meetings to be arranged according to units taken. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for master’s degree. Preparation for the comprehensive or language requirements in consultation with the field adviser. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Meetings to be arranged according to units taken. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for doctoral degree. Study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Professional Courses

300. Professional Preparation for Teaching Assistants in Music. (2-4) Course may be repeated for credit. Meetings to be arranged according to units taken. Must be taken on a satisfactory/unsatisfactory basis. Special study under the direction of a staff member with emphasis on the teaching of undergraduate courses in music. (F,SP)

405. Elementary Piano. (1) Course may be repeated for credit. One hour of studio per week. Must be taken on a passed/not passed basis. Prerequisites: Restricted to new majors for auditors. Two semesters are strongly recommended for music majors who lack the basic keyboard skills needed for musicianship and harmony classes. (F,SP) Staff

410. Vocal Technique. (1) Course may be repeated for credit. One hour of studio per week. Prerequisites: Restricted to music majors or those enrolled in the University Choruses and consent of instructor. Formerly 410-A. A course in basic vocal techniques, primarily for students in the University Choruses, covering techniques of breathing, pronunciation, and articulation.

Nanoscience and Engineering
(Engineering in Chemistry, College of Engineering, College of Letters and Science)

Office: 210 McLaughlin Hall #1726, (510) 643-6681 nano.berkeley.edu

Chair: Constance Chang-Hasnain

Executive Committee
Constance Chang-Hasnain (EECS)
Steve Leone, Ph.D. (Chemistry)
Kevin Healy, Ph.D. (MSE)
Mike Crommie, Ph.D. (Physics)
Jeoud Yang, Ph.D. (Chemistry)
Rachel Segalman, Ph.D. (Chemical Engineering)
Nilsah Balakirev, Ph.D. (Chemical Engineering)
Lydia Sohn, Ph.D. (Mechanical Engineering)

Overview
The Graduate Group in Nanoscale Science and Engineering (NSE) administers the Designated Emphasis in NSE. Faculty associated with the group come from many engineering and physical science departments and share an interest in the growing body of research surrounding the synthesis, characterization, fabrication, and modeling of nanostructured materials and devices.

Doctoral students in associated departments who wish to pursue an emphasis in nanoscale research can add the Designated Emphasis to their Ph.D. degree goals. The D.E. curriculum is designed to fulfill one of the required area emphases of the student’s Ph.D. program while providing additional opportunities for study and collaboration across the associated disciplines.

Coursework requirements include the core course, two electives, participation in a group seminar, and a nano-related thesis. Students usually apply for the DE during their first or second year of study. For a list of participating programs and courses that are included in the curriculum, please visit nano.berkeley.edu/educational/DEGradGroup.html.

Graduate Courses
C201. Introduction to Nanoscience and Engineering. (3) Three hours of lecture per week. Prerequisites: Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor. A three-module introduction to the fundamental topics of Nanoscience and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials of optical, electrical, and device-based nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core requirement. Also listed as Bioengineering C280, Materials Science and Engineering C281, and Physics C201. (F,SP) Gronsky, S.W. Lee, Wu
Native American Studies

(College of Letters and Science)

Program and Major Office: 506 Barrows Hall, (510) 642-6725
ethnicstudies.berkeley.edu/nas
Chair: Beatriz Manz, Ph.D.

Professors
Thomas J. Biscoi, Ph.D.
Patricia Perez Hakken (Emeritus), Ph.D.
Terry Wilson (Emeritus), Ph.D.

Assistant Professor
Beth Piato, Ph.D.

Lecturers
Joseph Myers, J.D.
J. Diane Pearson, Ph.D.

Undergraduate Major Adviser: Ms. Hopper

Group Major in Native American Studies

The Native American Studies Program exists to broaden the understanding of students interested in the history, culture, and contemporary situations of Native Americans in the United States. The curriculum has been structured to provide courses that deal with both historical and cultural analysis of Native American cultures and contemporary legal and social institutions that affect Native American life. The program not only stresses sound academic preparation in the classroom but also allows students the flexibility to take part in community-oriented education through field work or directed toward community situations and problems.

The Major

The major program in Native American Studies leads to an A.B. degree. Admission to the program requires written approval from a program academic adviser who will assist in working out an appropriate course of study. Consultation with the adviser for admission into the major should be held no later than the first semester of the junior year. Students will be required to outline their academic and professional goals.

Major Requirements

Lower Division. Ethnic Studies 10AC and 11AC. Native American Studies 20A and 20B.

Upper Division. Ethnic Studies 101A, 101B, 103; Native American Studies 110; completion of three elective courses from Native American Studies 101, 103, 120, 145, 149, 150, 151, 154, 155, 158, 175, 176, 177, 178, 178AC, 182, 190; Native American Studies 197 (4 units total).

Honors Program

The Native American Studies Program provides a program leading to the A.B. degree with honors. A student must have junior standing; a 3.5 GPA overall; and a 3.5 GPA in the major. To complete the degree with honors the student will be required to undertake a 4-unit research project (H195) that will be specified as an honors project and will be graded according to standards determined by the faculty as being of honors quality. A committee of three faculty members will establish criteria and grade the project.

The Minor

Requirements: Native American Studies 110; completion of four elective courses from Native American Studies 101, 103, 120, 145, 149, 150, 151, 154, 155, 158, 175, 176, 177, 178, 178AC, 182, 190.

Lower Division Courses

R1A. Native American Studies Reading and Composition. (4) Three hours of lecture and one hour of writing workshop per week. Prerequisites: Satisfactory completion of UC Entry-Level Writing Requirement. Formerly 1A. This course introduces students to the genres of Native American literature (written and oral traditions), provides historical and cultural frameworks for understanding and appreciating, and interpreting Native American writings, and develops basic skills in expository and creative writing. Satisfies the first half of the Reading and Composition requirement. (F,SP) Staff

R1B. Native American Studies Reading and Composition. (4) Three hours of lecture and one hour of writing workshop per week. Prerequisites: 1A. Formerly 18. Course examines Native American written and oral traditions in historical and cultural contexts. Emphasis on literary interpretation and critical and analytical writing, so that students increasingly write from positions of strength. Satisfies the second half of the Reading and Composition requirement. (F)

20A. Introduction to Native American Studies. (4) Three hours of lecture and one hour of tutorial per week. This course explores Native American identity practices in written and oral traditions in literature, art, dance, theatre, ceremony, and song. The place of these traditions in the contemporary day will be emphasized as creative struggles for maintaining and elaborating on Indian identity in the context of colonialism. (SP) Staff

20B. Introduction to Native American Studies II: Cultural Practice, Art, and Identity. (4) Three hours of lecture and one hour of discussion per week. This course explores Native American identity practices in written and oral traditions in literature, art, dance, theatre, ceremony, and song. The place of these traditions in the contemporary day will be emphasized as creative struggles for maintaining and elaborating on Indian identity in the context of colonialism. (SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/no pass basis. Prerequisites: Freshman status or permission of instructor. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

71. Native Americans in North America to 1900. (4) Three hours of lecture and one hour of discussion per week. Formerly 71A and 71B. In this historiographical analysis of America’s original inhabitants and their interactions with Europeans and Euro-Americans emphasizing an Indian perspective. (F) Staff

72. Native Americans in the 20th Century. (4) Three hours of lecture and one hour of discussion per week. Formerly 50 and 71B. A survey and analysis of issues affecting Native Americans in the 20th century. Course will explore political, economic, and social/cultural developments as they affect Native-American relations and tribal sovereignty. (SP) Staff

C73AC. Indigenous Peoples in Global Inequality. (4) Three hours of lecture per week. This course examines the history of indigenous, aboriginal, native, or “tribal” peoples over the last five centuries. Particular attention is paid to how these groups were brought into relations with an expanding Europe, capitalist development, and modern nation-states. How have these peoples survived, what are the contemporary challenges they face, and what resources and allies have they drawn on in the present? Also listed as...
Ethnic Studies C73AC. This course satisfies the American Cultures requirement. (SP) Biola

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for 15 weeks. Two hours of seminar per week for 10 weeks. Two hours of seminar per week for up to eight weeks. Three hours of seminar per week for five weeks. Sections 1-2 to be graded on a passed/not passed basis and may be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across all the campuses. Such seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

90. Freshman Seminar—Myth, Memory and History. (4) Three hours of seminar per week. Prerequisites: Limited to freshmen. The course will introduce students to different ways of understanding the history of American Indians and to basic resources and research methods for studying the history of Indian tribes. (F,SP) Staff

97. Field Work in Native American Communities. (1-3) Course may be repeated for credit as project varies. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and lower division standing. Individual conferences to be arranged. Supervised experiences relevant to specific aspects of the Native American community in off-campus settings. Regular individual meetings with faculty sponsor. (F,SP) Staff

98. Supervised Group Study and Research. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curriculum” section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Limited to freshmen and sophomores. Supervised research by lower division students. (F,SP) Staff

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit as project varies. Three hours of work per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Limited to freshmen and sophomores. Supervised research by lower division students. (F,SP) Staff

100. Native American Law. (4) Three hours of lecture per week. Prerequisites: 71, 72, or consent of instructor. Historical and legal aspects of the relationship between the United States government and Native American tribes, and examination of contemporary legislation, court cases, and federal, state, and local policies affecting Native American social, political, legal, and economic situations. (F) Staff

101. Native American Tribal Governments. (4) Three hours of lecture per week. Prerequisites: 71, 72, or consent of instructor. Formerly 103. The roles of tribal governments in the formation of internal and external policies affecting the lives of Native American people, the basis for their political power historically and in contemporary society, and their structure and functions. (F,SP) Staff

102. Critical Native American Legal and Policy Studies. (4) Three hours of lecture per week. Prerequisites: 101, 103, or consent of instructor. Key contemporary issues in the critical study of tribal and federal policy pertaining to American Indians and Alaska Natives in the U.S. Topics include: political and cultural sovereignty; religious, gendered, sexual, racial, and other tribal minorities, and civil rights within tribes; Native legal identity and tribal enrollment; the role of violence against women in the history of colonialism, and the struggle for justice and healing; and the movement for traditional or other culturally appropriate forms for tribal self-governance. (F,SP) Biola

104. Native American Economic Development. (4) Three hours of lecture per week. Prerequisites: 72 or consent of instructor. Analysis of impact of U.S. economic policies and historians. Examination of the effect of federal legislation, Bureau of Indian Affairs regulations, and corporate interests on tribal economic life. Consideration of alternative strategies of development with an emphasis on Native American innovative business practices. (F,SP) Staff

110. Theories and Methods in Native American Studies. (4) Three hours of lecture per week. Prerequisites: 71 or consent of instructor. Overview of literary theory and criticism, historiography, and social sciences theories and methods as they apply to the study of Native American literature, history and contemporary tribal groups. Course will develop skills of information gathering and development of theories that structure information. (SP) Staff

120. Topics in Native American Arts. (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. This course explores the practice of Native American art forms from the perspective of Native American artists and scholars. Focused on specific art forms such as dance, music, film, crafts, and other traditions, this course provides a critique of conventional understandings of the relationships of Native American cultural traditions and their place in the world of “art.” (F,SP) Staff

145. Making History/Making “Indians.” (4) Three hours of seminar per week. Prerequisites: 71 or 72 or consent of instructor. This course explores the ways in which an invented, generic “Indian” has played a variety of roles in master narratives of United States history. We shall examine changes in images of key figures and events constituting “our” collective historical memory. (F,SP) Staff

149. Gender in Native American Society. (4) Three hours of lecture per week. Prerequisites: 71 or 72 or consent of instructor. Course will examine gender roles from the period before the invasion to the present. An emphasis will be placed on the ways in which contact with European gender practices transformed those prevalent in Native North American before the conquest. (F,SP) Staff

151. Native American Philosophy. (4) Three hours of lecture per week. Prerequisites: 71 or consent of instructor. A study of the philosophical and metaphysical traditions of Native Americans, in the context of world views, with emphasis on systems of knowledge, explanations of natural phenomena, and relations of human beings to nature through ritual and ceremonial observances. (SP) Staff

152. Survey of Native American Tribal Government. (4) Three hours of lecture per week. Prerequisites: Formerly 103. Analysis of the development of tribal government and policy including political institutions, the tribal society, inter-tribal alliances, and effects of European contact. (F,SP) Faust

152. Native American Literature. (4) Three hours of lecture per week. Prerequisites: 151 is recommended but not required. An analysis of the written and oral tradition developed by Native Americans. Emphasis will be placed on a multifaceted approach (aesthetic, linguistic, historical, and cultural) in examining American Indian literature. Also listed as American Studies C152.

155. Native American Medicine. (4) Three hours of seminar per week. Prerequisites: 71, Anthropology 3, or consent of instructor. Theories of health and illness, and curing practices, including traditional medicines, ceremonies, and physical techniques, among Native American groups in North and South America. (F,SP) Staff

158. Native Americans and the Cinema. (4) Three hours of lecture per week. Prerequisites: Hours to be confirmed by instructor. This course will analyze the sociological, psychological, and literary aspects of Hollywood moviemakers’ stereotyping of the American Indian through the history of film. The format will include representative Indian films, lectures, and guest speakers from the movie industry. (F,SP) Staff

175. History of Native Americans in California. (4) Three hours of lecture per week. Prerequisites: 71, 72, or consent of instructor. History of the Native American experience in California with emphasis on lifestyles, languages, religions, warfare, and relations with the United States government. Attention will be given to the background and evolution of acculturation up to the present. (SP) Staff

176. History of Native Americans in the Southwest. (4) Three hours of lecture per week. Prerequisites: 71, 72, or consent of instructor. An historical analysis of the Native American nations of the southwestern United States. (F,SP) Staff

178. Topics in Native American History. (4) Course may be repeated for credit. Three hours and one hour of discussion per week. This course explores the history of Native Americans from the point of view of Native American historians and scholars. Focused on specific periods and regional case studies the course provides a rereading of much United States history as it has been conceived, set into periods, written, and taught. The chronological scope of the course begins before the European invasions and continues to the end of the 20th century. (F,SP) Staff

178AC. Africans in Indian Country. (4) Three hours of seminar per week. This seminar will explore the intersections of Native American and African American historical and cultural communities in the United States which was formerly “Indian Country.” We will read historical texts, first-person accounts, fiction, and primary documents primarily from the perspective of Native American, African American, Black-Indian scholars and writers. This course satisfies the American Cultures requirement. (F,SP) Staff

182. Native American Music. (4) Three hours of lecture per week. Focuses on the range and variety of musical forms and styles and the relationship of each to other aspects of human activity, belief, and world view. In particular, the relationship of music and ceremonial activities will be emphasized. The format will include discussion, recordings, and direct contact with musicians and researchers. (SP) Staff

190. Seminar on Advanced Topics in Native American Studies. (1-4) Course may be repeated for credit as topic varies. One to four hours of seminar per week. Prerequisites: Consent of instructor. Advanced seminar on Native American Studies with topics to be announced at the beginning of each semester. (F,SP) Staff

195. Senior Thesis. (4) Independent study. Prerequisites: Consent of instructor. Writing of a thesis under the direction of member(s) of the faculty. (F,SP) Staff

H195. Native American Studies Honors Course. (4) Course may be repeated for credit. Honors to be arranged. Prerequisites: Student must have junior standing; a 3.5 GPA overall; a 3.5 GPA in major; and have been admitted to the honors program by the faculty advisor. The course will entail directed study and completion of an honors research project under the direction of a faculty committee. The project should have originated from a regularly scheduled course in the department. (F,SP)

197. Fieldwork in the Native American Community. (1-3) Course may be repeated for credit as project varies. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and upper division standing preferred. Individual conferences to be arranged. Supervised experiences relevant to specific aspects of the Native American community in off-campus settings. May be repeated for credit as topic varies. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and upper division standing preferred. Individual conferences to be arranged. Group discussion, research, and reporting on topics by students. Under direction of faculty, the project is to be originated from a regularly scheduled course in the department. (F,SP) Staff

198. Supervised Group Study. (1-3) Course may be repeated for credit as project varies. Must be taken on a passed/not passed basis. Prerequisites: Consent of the instructor and upper division standing preferred. Individual conferences to be arranged. Group discussion, research, and reporting on topics by students. Under direction of faculty, the project is to be originated from a regularly scheduled course in the department. (F,SP) Staff

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199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit as project varies. Must be taken on a passed/not passed basis. Permission of division, standing of student, and consent of instructor. Individual conferences to be arranged. The individual student, with consent and guidance of an instructor, researches an interest not covered in the courses offered in the Program. (FSP)

Natural Resources (College of Natural Resources)

Office of Instruction and Student Affairs: 260 Mulford Hall, (510) 643-0424 Office of the Dean: 101 Giannini Hall, (510) 642-7171 Natural Resources has developed multidisciplinary programs that range from technology to medicine and public health, environmental economics and ecosystem management. All College of Natural Resources majors are built on a strong foundation in a biological, physical or social science field, and students can earn a B.S. in one of 10 different fields. CNR courses and programs are designed to diffuse, or “extend,” scientific and environmental literacy as broadly as possible on the campus and in the community. The College offers undergraduates a small college environment and close working relationships with faculty members and advisers. Those relationships include opportunities for hands on research experience, in the field opportunities, and community service. CNR programs also offer many interdisciplinary approaches to problem solving. College faculty and students work together to understand and evaluate the complex interactions between human and natural systems that will meet fundamental human needs for healthy food, potable water, and sustainable agricultural and energy systems. Our biological science programs span a breadth of topics from the microbes through chemical biology to human and environmental health. The College offers a spectrum of cellular and organismal aspects of genetics, and agricultural biotechnology. Offered by the Department of Plant and Molecular Biology.

Overview

The College of Natural Resources educational programs help our majors become our professionals, leaders that range from technology to medicine and public health, environmental economics and ecosystem management. All College of Natural Resources majors are built on a strong foundation in a biological, physical or social science field, and students can earn a B.S. in one of 10 different fields. CNR courses and programs are designed to diffuse, or “extend,” scientific and environmental literacy as broadly as possible on the campus and in the community. The College offers undergraduates a small college environment and close working relationships with faculty members and advisers. Those relationships include opportunities for hands on research experience, in the field opportunities, and community service. CNR programs also offer many interdisciplinary approaches to problem solving. College faculty and students work together to understand and evaluate the complex interactions between human and natural systems that will meet fundamental human needs for healthy food, potable water, and sustainable agricultural and energy systems. Our biological science programs span a breadth of topics from the microbes through molecular biology to human and environmental health. The College offers a spectrum of cellular and organismal aspects of genetics, and agricultural biotechnology. Offered by the Department of Plant and Molecular Biology.

Freshman Applicants

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Graduate Programs

Academic and professional graduate degree programs available in the College of Natural Resources are listed below.

Inquiries regarding details of the various graduate programs may be directed to the appropriate graduate adviser.

Ad Hoc Interdisciplinary Doctoral Program (Administered by the dean of the Graduate Division)

Agricultural and Resource Economics

Chair: Brian J. Staskawicz, Ph.D.

Environmental Science, Policy, and Management

Chair: Joe Napoli, Ph.D.

Forestry (M.F.)

Chair: Peter Berck, Ph.D.

Environmental Science, Policy, and Management

Chair: Kate O'Neill, Ph.D.

Food Science

Chair: Kevin O'Hara, Ph.D.

Molecular Toxicology

Chair: Stephen Welter, Ph.D.

Plant Biology

Chair: Patricia Zambrayski, Ph.D.

Range Management (M.S.)

Chair: Barbara Allen-Diaz, Ph.D.

Organizational Units

Agricultural and Resource Economics

Department Office: 207 Giannini Hall, (510) 642-3345

Chair: Larry Karp, Ph.D.

Environmental Science, Policy, and Management

Department Office: 140 Mulford Hall, (510) 643-2525

Chair: Martin Odlestein, Ph.D.

Environmental Sciences

Department Office: 260 Mulford Hall, (510) 642-0542

Co-Director: Stephen Welter, Ph.D.

Co-Director: G. Mathias Kondolf, Ph.D.

Nutritional Science and Toxicology

Department Office: 119 Morgan Hall, (510) 642-6490

Chair: Joe Napoli, Ph.D.

Plant and Microbial Biology

Department Office: 111 Koshland Hall, (510) 642-5167

Chair: Brian J. Staskawicz, Ph.D.

Lower Division Courses

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-8 to be graded on a letter-grade basis. Sections 9-16 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Sections 1-4 to be graded on a letter-grade basis. Sections 5-8 to be graded on a passed/not passed basis. Prerequisites:
The Minor in Near Eastern Civilizations

Ancient Near Eastern Civilizations. This emphasis requires NES 10; one course from NES 15, 25, 25B, or 34; and eight upper division courses from a list available in the department office. Up to two courses on the list for Islamic civilizations may be substituted with the approval of the NES department undergraduate adviser.

Islamic Civilizations. NES 10 is required. NES 15 or 30 and 201 or 202 are recommended. Students must complete nine upper division courses in the areas of religion, history, culture, and literature, and Near Eastern languages, from a list available in the department office. Up to two courses on the list for Ancient Near Eastern civilizations may be substituted with the approval of the NES department undergraduate adviser.

Honor Program

With the consent of the undergraduate adviser, a student with an overall GPA of 3.3 or higher and a GPA of 3.5 or higher in courses completed in the major may apply for admission to the honors program. The requirements of this program include the completion of the honors thesis during the student's senior year. For a complete description of the program, please inquire at the department office.

The Minor in Arabic, Option A. Required courses: Arabic 20A-20B (in addition to Arabic 1A-1B). Five upper division courses: Arabic 100A; two one-semester literature courses (in Arabic); two one-semester courses in Arabic culture/history.

The Minor in Arabic, Option B. Required courses: Seven upper division courses: five one-semester courses in Arabic language or literature; one two-semester courses in Arabic culture/history. The Minor in Hebrew, Option B. Required courses: Seven upper division courses: five one-semester courses in Hebrew language or literature; two one-semester courses in Hebrew culture/history.

The Minor in Persian, Option A. Required courses: Persian 1A-1B. Five upper division courses: Persian 100A-100B; Persian 101A-101B; a one-semester course in Persian culture/history.

The Minor in Persian, Option B. Required section: Seven upper division courses: five one-semester courses in Persian literature (in Persian); two one-semester courses in Persian culture/history.

The Minor in Turkish, Option A. Required courses: Turkish 1A-1B. Five upper division courses: Turkish 100A-100B; Turkish 101A-101B or Turkish 102A-102B; a one-semester course in Turkish culture/history.

The Minor in Turkish, Option B. Required section: Seven upper division courses: five one-semester courses in Turkey literature (in Turkish); two one-semester courses in Turkish culture/history.

The Minor in Ancient Egyptian and Near Eastern Civilizations. Required courses: NES 15 or 18, and five semesters of upper division courses from a list available at the department office. NES 25 and 34 are recommended.

Graduate Programs

Graduate programs leading to the M.A. and Ph.D. degrees are offered in the following fields: Arabic, Hebrew, Persian, and Turkish. The same degrees are also offered in the following fields of Near Eastern studies: archaeology, art history, cuneiform, Biblical and Judaic studies, Old Iranian studies, comparative Semitics, Egyptology, and Islamic studies.

Graduate Degrees

Applicants for graduate study should have fulfilled the equivalent of the departmental requirements for the A.B. in their proposed area of study. The department encourages its own graduate students to take advantage of courses in other departments which are relevant to their disciplines and fields of study. Upon approval by the graduate adviser, such courses may be recognized as fulfilling portions of the departmental coursework requirements for graduate degrees.

The M.A. Degree. The M.A. is obtained according to the Graduate Division’s Plan II. A complete description of Graduate Division requirements for this degree is found in the "Graduate Education" section of this catalog. In addition to the requirements outlined for Plan II, students must pass a reading examination in either French or German (another language may be substituted on approval of the major adviser). Plan II requires at least 24 units of coursework. For students in the language programs, at least 12 of their 24 units must be in 200-series courses in the major and three semesters of work in a Near Eastern language other that the student’s major language. For students in archaeology and art history programs with a Near Eastern emphasis, at least 12 of the 24 units must be in 200-series courses and the three semesters must be drawn from NES 220A-220B and 223A-223B. For students in archaeology and art history programs with an Egyptian emphasis, at least 12 of the 24 units must be in 200-series courses, and the required 24 units must include two semesters of work in the ancient Egyptian language beyond the second-year level. The 12 200-series units must be from seminar courses (one 200-level Egyptian language course may count toward the seminar requirement). Two scholarly papers written independently or in connection with coursework will also be required. Written comprehensive examinations are required of all students. Exams may be given in the following fields: (a) one of the major languages; (b) general knowledge of the history, culture, and civilization of the Near East; (c) one of the following fields: ancient Near Eastern studies with the approval of the student’s major adviser).
ology and civilization of area of emphasis; (c) knowledge of other subjects suggested by the student’s degree committee.

The Ph.D. Degree. Students must have completed an appropriate M.A. program to be eligible for the Ph.D. program. Admission to candidacy for a Ph.D. degree depends on successful completion of the following requirements:

1. Ph.D. coursework;
2. reading examinations in French and German (proficiency in a European or other modern language or Germanic language), and
3. proficiency in one or two Near Eastern languages, as required for the student’s field of study.

For language majors, proficiency will be tested through the written preliminary examinations, which will cover at least two Near Eastern languages. For Egyptian archaeology and art history majors, proficiency will be tested through a written examination in Egyptian and/or Coptic which must be completed and passed no later than the semester before the student’s qualifying examination. Archaeology and art history student credits (except those in Egyptian archaeology) who have not completed a minimum of 90 units of coursework in an ancient or modern Near Eastern language must pass a proficiency examination in an ancient or modern Near Eastern language before taking the preliminary examinations.

(4) fieldwork (for art history and archaeology majors);
(5) written preliminary examination and the oral qualifying examination;
(6) a prospectus of the dissertation approved by the student’s proposed Ph.D. dissertation committee.

After admission to candidacy, the student is to fulfill the requirements for the dissertation as outlined in the “Graduate Education” section of this catalog.

For further information on these graduate programs, contact the graduate assistant in 250 Barrows Hall.

Special Programs

The Joint Doctoral Program in Near Eastern Religions. This program, which combines the faculty and library resources of the University of California, Berkeley, and the Graduate Theological Union, is a flexible course of study, probing in depth the historical, cultural, religious, and political landscape of the civilizations of ancient Egypt, Mesopotamia, and the Near East.

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Near Eastern Studies

Courses listed under Near Eastern Studies are taught in English. Courses listed under language headings are language courses and assume an appropriate level of knowledge of that language.

The online Schedule of Classes issued before the start of each semester, and listings posted at the department office, provide further detailed information about the courses offered by the Department of Near Eastern Studies, including when and by whom each course will be given.

Lower Division Courses

R1A-R1B. Reading and Composition in Ancient Near Eastern Texts. (4) Three hours of lecture and one hour conference per week. Prerequisites: UC Entry-Level Writing Requirement or UC Analytical Writing Placement Exam. Expository writing based on analysis of selected Middle Eastern literatures in translation, such as Arabic, Hebrew, Persian, Turkish prose and/or poetry. Satisfies the first half Reading and Composition requirement, and R1B satisfies the second half.

R2A. Reading and Composition in Modern Middle Eastern Texts. (4) Three hours of lecture and one hour conference per week. Prerequisites: UC Entry-Level Writing Requirement or UC Analytical Writing Placement Exam. Expository writing based on analysis of selected Middle Eastern literatures in translation, such as Arabic, Hebrew, Persian, Turkish prose and/or poetry. Satisfies the second half of the Reading and Composition requirement.

10. Introduction to the Near East. (4) Three hours of lecture and one hour of discussion per week. The background and present status of the religious and cultural landscape of the Near East.

15. Introduction to Near Eastern Art and Archaeology. (4) Three hours of lecture and one hour of discussion per week. The ancient Near East (present-day Iran, Iraq, Syria, Jordan, Lebanon, Israel, and Turkey) is considered the cradle of civilization. Here in Mesopotamia and its neighbors, the first cities arose, writing was invented, armies formed the earliest empires, and complex religious beliefs were expressed in art and architecture. This course surveys the major archaeological sites and the earliest civilizations of the Near East.

18. Introduction to Ancient Egypt. (4) A general introduction to ancient Egypt, providing an overview of ancient Egyptian culture and society (history, art, religion, language, culture, and social structure). Ancient Egyptian archaeology is covered with a focus on key periods and themes, such as the New Kingdom and pharaohs. The course is offered every fall semester, and will acquaint the student with the historical and intellectual history of Egypt.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis.

26. Introduction to Central Asia. (3) Three hours of lecture per week. Formerly 26. This course will introduce the student to the region’s history, culture, and society, with a focus on recent developments in the region.

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor.

98. Directed Group Study for Lower Division Students. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One contact hour per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing. Student must submit a written proposal with consent of instructor to the department chair for approval.

99. Supervised Independent Study. (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One contact hour per week per unit. Must be taken on a passed/not passed basis. Prerequisites: At discretion of instructor. Course may be repeated for credit as topic varies. One hour of seminar per week.

Upper Division Courses

102A-102B. Archaeology of Ancient Egypt. (4) Three hours of lecture and one hour of museum section per week. Prerequisites: 18 or equivalent or consent of instructor. A survey of the archaeological materials available for the reconstruction of ancient Egyptian culture and society.

A. Pharaohs of the Old Kingdom.
B. The Middle and New Kingdoms.

Special emphasis will be given to current archaeological theories and recent discoveries. Extensive use will be made of the Hearst Museum collection.

103. Religion of Ancient Egypt. (3) Three hours of lecture per week. Prerequisites: 18 or consent of instructor. A survey of the religious beliefs of the ancient Egyptians, based primarily upon the written sources. Also listed as Religious Studies C103.

104. Babylonian Religion. (3) Three hours of lecture per week. A survey of Babylonian religious beliefs and practices based on indigenous texts and traditions. Also listed as Religious Studies C104.

105. Ancient Mesopotamian Documents and Literature. (3) Three hours of lecture per week. A rep
106A-106B. Art and Architecture of Ancient Egypt. (4;4) Three hours of lecture and one hour of discussion per week. Prerequisites: A. 18 or equivalent, or consent of instructor. B. 106A or consent of instructor. Stylistic and iconographic study of Egyptian art and architecture from Predynastic times through the end of the pharaonic period. Discussion sections will focus on Egyptian art in situ in the Hearst Museum collection.

A. Will cover the period from Predynastic times until the end of the First Intermediate Period (ca. 2000-2000 BC).
B. Will consider the period from the end of the First Intermediate Period through the Graeco-Roman Period (ca. 2000 BC-1st century AD).

108. Topics in the Ancient Mediterranean World. (2-4) Course may be repeated for credit as topic varies. Three hours of lecture or seminar per week. Three units awarded when course is given as a lecture course. Four units are given when course is given as a seminar and the student completes a seminar paper; two units when the seminar and there is no seminar paper. Prerequisites: Consent of instructor. Varying topics in the cultural connections of the ancient Mediterranean world from the fourth millennium B.C.E. to late antiquity. Typical themes/topics might include: ideologies of gender and sexuality; comparative religious or literatures; archaeological and/or historical interconnections.

109. Mesopotamian History. (3) Three hours of lecture per week. Ancient Mesopotamian political, cultural, and religious history from the invention of script to the Persian conquest of Babylon will be presented in survey, and one topic will be selected for in-depth study.

110. Art and Archaeology of Ancient Egypt in the First Millennium B.C.E. (3) Three hours of illustrated lecture per week. Prerequisites: 18 or equivalent or consent of instructor. The course surveys the art and/or archaeology of ancient Egypt in the first millennium B.C.E. It covers ancient Egyptian material culture of the Third Intermediate, Late, Ptolemaic, and Early Roman periods.

112. Survey of Ancient Egyptian History. (4) Students will receive no credit for 112 after taking 101A-101B; 2 units after taking 101A or 101B. Three hours of lecture or seminar per week. Prerequisites: Consent of instructor. A concise survey of Ancient Egyptian history from the Old Kingdom to the New Kingdom.

113. Gilgamesh: King, Hero, and God. (4) Three hours of lecture per week. The most famous of Babylonian heroes is Gilgamesh, King of Uruk. The Gilgamesh Epic, recorded on twelve tablets in cuneiform, follows him in his quest for fame and eternal life. In this course, we will read the Gilgamesh Epic in translation, as well as several earlier texts around the same character. Moreover, we will read additional ancient texts that elucidate one or another aspect of the Epic. We will follow a visual and literary map of the Gilgamesh Epic and his fame was used for literary, religious, and political purposes. Finally, we will look at some of the modern Gilgamesh interpretations.

C120A. The Art of Ancient Mesopotamia: 3500-1000 BCE. Three hours of lecture and one hour of discussion per week. The art and architecture of early Mesopotamia will be explored in terms of the social, political, and cultural context of ancient Sumer, Babylonia, and Assyria during the period of urbanization and economic growth. This history will be supported by a rich primary source base, which will include the archives from the ancient cities of Mesopotamia and their neighboring regions from 3500-1000 BCE with an emphasis on the development of visual narrative, the use of art in the expression of authority and legitimacy, and artistic interconnections between cultures. Collections on campus or the area will be incorporated whenever possible. Also listed as History of Art C120A.

C120B. The Art of Ancient Mesopotamia: 1000-330 BCE. (4) Three hours of lecture and one hour of discussion per week. The royal art and architecture of later Mesopotamia will be explored in terms of the social, political, and cultural context of the great empires of Assyria, Babylon, and Persia. The course provides an integrated picture of the arts of Mesopotamia to examine the evolution of visual narrative, the use of art in the expression of authority and legitimacy, and artistic interconnections between cultures. Collections on campus or the area will be incorporated whenever possible. Also listed as History of Art C120B.

C121B. Topics in Islamic Art. (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. The course will treat in depth topics in Islamic architecture and art topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production. Also listed as History of Art C121B.

123A-123B. Mesopotamian Archaeology. (4;4) Three hours of lecture or seminar per week. A survey of the archaeology of Mesopotamia.

124A. Archaeology of the Southern Levant. (3) Three hours of illustrated lecture per week. The course provides a general survey of the archaeology of the Southern Levant (Israel, Jordan, Lebanon, Southern Syria, Palestine, and Jordan) from the Neolithic to the 10th century CE. The material culture of the region is emphasized, along with the major theoretical and interpretative frameworks and issues affecting our understanding of the archaeology of the region.

126. Silk Road Art and Archaeology. (3) Three hours of lecture per week. The course will outline art and archaeology of the Silk Roads from the fifth century BCE to the 10th century CE. At least 10 specific sites located along the Silk Roads will be selected and explored in depth, as examples which reveal the manifold cultural currents along the trade routes. Special attention will be paid to the eclecticism in Silk Road cultures brought about by the movement of peoples and merchandise which facilitated the spread and fusion along these trading routes of various ideas, cultural forms, art styles, and religious concepts. The social and political underpinnings of this eclecticism will be examined.

127. Art and Archaeology of Ancient Syria. (4) Three hours of lecture per week. The course will take a broad introduction to the cultures of ancient Syria from the Neolithic period to 500 BCE. The diversity of cultures and their development over time will be assessed in light of the built environment and artistic production. Emphasis is placed on interpreting the material culture of the region within its social and political contexts.

C129. Minoan and Mycenaean Art. (4) Three hours of lecture or discussion per week. This course analyzes the art, architecture, and archaeology of prehistoric Greece, concentrating on the Minoan and Mycenaean palatial arts of the Bronze Age (3000-1200 BCE). The evocative yet still enigmatic remains of palaces and funerary complexes, frescoes and vase paintings, and precious worked pieces will be closely examined in terms of their forms and cultural contexts. The place of prehistoric Greece in the international world of art will also be explored. Also listed as History of Art C140.

131. Aspects of Biblical Religion. (4) Three hours of lecture per week. The teachings of ancient Israel’s priests, prophets and sages on various universal issues.

132. Biblical Poetry. (4) Three hours of lecture and one hour of discussion per week. A survey of the poetical and genres of poetry in the Hebrew Bible, focusing on close reading of selected texts. Theoretical issues will include the dynamics of parallelism, metaphor, intertextuality, agency, and gender. Historical issues will include the ancient Near Eastern technical genres and the political and ritual dynamics of the biblical poems. Throughout the course, we will also be reading selected modern poems that respond to biblical texts. Primary texts will be largely drawn from the books of Psalms, Proverbs, Job, Ecclesiastes, Song of Songs, and the prophets. All texts will be read in translation.

C133. Judaism in Late Antiquity. (4) Three hours of lecture and one hour of discussion per week. This course will examine the development of classical Judaism, its piety, institutions, thought, and literature. Also listed as Religious Studies C133 and Undergrad Interdisciplinary Studies C153.

C135. Jewish Civilization I: The Biblical Period. (4) Three hours of lecture and one hour of discussion per week. This is the first course in a four-course sequence in the history of Jewish culture and civilization. It covers the biblical period and the period up to the destruction of the second temple. This course will explore the current state of our knowledge, including the legacy of ancient Near Eastern mythology and religion, the history of Israelite religion, the literary features of biblical narrative, and the Dead Sea Scrolls. Also listed as Undergrad Interdisciplinary Studies C152 and Religious Studies C132.

136. History and Historiography in the Hebrew Bible. (3) Three hours of lecture per week. A critical examination of the form and content of history-like narratives of the Hebrew Bible’s light of concepts of history and historiography. In the ancient Near East and in contemporary historical studies. Selective focus on one or more books in Genesis through Kings, Chronicles, and Ezra-Nehemiah.

137. The Hero in the Bible and the Ancient Near East. (3) Three hours of lecture per week. An investigation of concepts of the hero/heroine in the literature of ancient Mesopotamia, Canaan, and Israel. The importance of heroic epic in defining and exploring morality, the self, and the cosmos will be a guiding concern. Texts include the epics of Gilgamesh and Aqhat, the Hebrew Bible, and the New Testament.

All texts are read in translation.

139. Modern Jewish Literatures. (3) Three hours of lecture per week. Prerequisites: Upper division standing or consent of instructor. Trends and genres in modern Jewish literatures—translated from Hebrew and Yiddish, with selected texts translated from other Jewish languages like Ladino and Judeo-Arabic. Focus will be on the development of Jewish culture since the enlightenment in the context of tensions between occidental and oriental formations of Jewish culture.

140. Topics in Islamic Thought and Institutions. (3) Course may be repeated for credit. Three hours of lecture per week. Selected topics from Islamic intellectual history.

142. Shi’ite Islam. (3) Three hours of lecture per week. The beliefs, traditions, and practices of the Shi’ite school of Islam.

143A-143B. Islam in Iran. (3;3) Three hours of lecture per week. A general survey of the religious history of Iran, Islamic period and development of religious institutions, the elaboration of the religious sciences, Sufism, and sectarian movements.

144. Sufism: The Mysticism of Islam. (3) May be repeated for credit when subject matter varies. Three hours of lecture per week. A general presentation of Sufism and Sufi orders, with a special emphasis on the Shi’a branch of Sufi orders; leading figures in the elaboration of Sufism as a distinct mode of Islamic practice; and the great diversity of Sufism as reflected in its geographic spread throughout the Muslim world.
146A. Islam. (3) Three hours of lecture per week. A comprehensive and detailed introduction to the sources, doctrines, practices, and institutions of Islam, together with their historical development and elaboration in a select number of ethnic and geographic environments and an overview of Islam in the world today.

147. The Rise of Islamic Civilization. (4) Three hours of lecture and one hour of discussion per week. A survey of Islamic civilization in the Middle East during the medieval period. Topics include: the emergence of Islam in Arabia and the role of the Prophet Muhammad; the rapid rise of an Islamic empire and its effects on the societies it governed; the creation of an Islamic civilization and the religious, political, and intellectual debates it engendered; contact with Europe and Asia through trade, Crusades, and nomadic conquest; the contribution of the Muslim-Muscisws, men, women, slaves.

155. Wonder and the Fantastic: The Thousand and One Nights in World Literary Imagination. (3) Three hours of lecture per week. After studying the tales themselves and examining their structure and how they fit into the genre of folk literature, we will investigate how the Nights was transmitted, translated, and received in Europe, as a window on 19th-century gender and racial attitudes, especially Western views of the “oriental” other. How did the Nights was creatively manipulated by Western writers? Will be studied, as will the influence of these tales on modern Arabic literature.

160. Religions of Ancient Iran. (3) Three hours of lecture per week. This course explores the history, religious, and cultural landscape of Persia from the ancient to the medieval period. It introduces students to the various religious traditions that have shaped the cultural landscape of Iran, including Zoroastrianism, Mithraism, and Islamic traditions.

162A-162B. History of Persian Literature. (4-4) Three hours of lecture and one hour of discussion per week. Near Eastern Studies 162A-162B offer a comprehensive introduction to the main currents in Persian literature from the 10th century to the contemporary period. They introduce students to various genres, period styles, and crucial formal and thematic elements necessary to the understanding of Persian literature. While 162A deals with classical Persian literature, 162B deals with Persian literature since the advent of modernity in Persian-speaking lands, namely the 19th century.

172. Haeres and Court Cultures. (4) Three hours of lecture/discussion per week. This course explores the power of religion in the political and cultural life of the eastern Mediterranean and Near East, and, for comparative purposes, in courts of China, South Asia, Mesoamerica, and Europe. So often imagined as a site of male sexual dominance, the harem is treated in this course as a mutable concept that sanctioned a range of gendered roles and identities. The term “harem” originated in the Near East, and for Europeans, the paradigmatic harem was that of the Ottoman sultan. But the broader question of the interplay among gender, the spatial dynamics of palaces, and royal power is universal. Themes considered compared and contrasted are: the spatial configurations of palaces; the status of non-wife (concubines and mistresses); patterns of recruitment to palace service; eunuchs as mediators of human and spatial boundaries.

173B. Topics in the History of Central Asia and the Turks. (3) A survey of the main themes in the cultural, political, and social history of Central Asia and adjacent regions, principally from the rise of Islam down to the present. The first half of the course will deal with the Islamic period in Central Asia and South Asia, and the second half will be devoted to the Turks, including their history and expansion, not only in Central Asia but also in Anatolia and South East Asia.
consultation with the graduate adviser. Units may not be used to meet either unit or residency requirements for a master's degree. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Must be taken on a pass/no pass basis. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residency requirements for the doctoral degree. (F,SP)

Arabic

Lower Division Courses

1A-1B. Elementary Arabic. (5,5) Five hours of recitation per week. Prerequisites: 1A is a prerequisite to 1B. This course emphasizes the functional usage of Arabic in the four language skills: listening, speaking, reading, and writing. Authoritative audio, video, and reading materials are prepared from the beginning, and students are encouraged to be creative with the language in and out of class.

1A1W-1BW. Elementary Arabic Distance Learning. (5,5) Five hours of web-based lecture per week. Prerequisites: Visiting UC students only (i.e., UC students not at UC Berkeley). For non-UC students, consent of instructor. This course is scheduled in an asynchronous format with streamed audio lectures and will use the same course content as Arabic 1A-1B, delivered in an online format. This course introduces students to Modern Standard Arabic and the understanding and application of grammatical and stylistic rules are emphasized. The course is taught on the discussion board (BB), and Web materials, and audio chat activities. This class may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 100A.

111A-111B. Survey of Arabic Literature (in Arabic). (3,3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A. This course is designed for majors and prospective majors in Arab studies. A. The Classical Periods: A literary-historical survey of Arabic literature from the pre-Islamic times to the middle of the 13th century, with emphasis on the more important achievements of major Arab authors. B. The Post-Abbasid and Modern Periods: A literary-historical survey of Arabic literature from the middle of the 13th century to the present.

110. Special Topics in Arabic. Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 20B or equivalent. Topics examine special themes of the Arabic language and literature. They often reflect the research interests of the instructor and supplements regular curricular offerings. Specific descriptions of current offerings are available through the department. (F,SP)

1H195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to senior honors candidates. Directed study centered upon preparation of an honors thesis.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment restrictions apply; see the "Introduction to Courses and Curricula" section of this catalog.

Graduate Courses

200. Arabic Grammatical Tradition. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 105 or the equivalent. Study of selected grammatical phenomena of Arabic based on readings from the classical Arabic grammarians. (F,SP)

201. History of Arabic. (3) Course may be repeated for credit when topics vary. Three hours of lecture per week. Prerequisites: 20B or its equivalent with consent of instructor. The history of Arabic from its Semitic antecedents through the formation of the modern dialects.

209A. Readings in the Qur'an. (3) Course may be repeated for credit as texts vary. Three hours of reading per week. Prerequisites: Three years of Arabic. Selected readings in Arabic from the Qur'an, traditional Islamic exegesis, and other secondary material.

212. Topics in Modern Arabic Literature: Poetry. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 109. Intensive study of modern poetry in relation to the cultural tradition.

220. Seminar in Classical Arabic Literature. (3) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: 20B or its equivalent. A close reading and careful literary analysis of significant authors and specific topics in Classical Arabic prose or poetry or both. (F,SP)

245. Seminar: Modernist Arabic Poetics. (3) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. This course examines the origins, status, and function of literary theory in the making of modern Arabic literature. Emphasis is made on contrastive analysis of literary genres, forms, modes, and techniques of representation are all central to the interests of this course.

298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Arabic. Topics vary and are announced at the beginning of each semester. (F,SP)

Professional Courses

301A-301B. Teaching Arabic. (3,3) One hour of lecture per week plus preparation in demonstration classes and colloquia. Must be taken on a satisfactory/unsatisfactory basis. The methodology of teaching Arabic as a foreign language at the college level. Lectures on contrasting analysis of English and Arabic classroom strategies, and the development of instructional materials. Required of all new graduate student instructors in Arabic.

Cuneiform

Upper Division Courses

100A-100B. Elementary Akkadian. (5,5) Four hours of lecture per week. Introduction to cuneiform script and grammar, reading of selected cuneiform texts. Sequence begins in fall. Offered alternate years.

101A-101B. Selected Readings in Akkadian. (3,3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 100A-100B. Reading of selected texts, including law codes, letters, myths, and epics. Sequence begins in fall. Offered alternate years.

102A-102B. Elementary Sumerian. (4,4) Three hours of lecture per week. Introduction to Sumerian grammar and reading.

103A-103B. Selected Readings in Sumerian. (3,3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 102A-102B. Reading of texts selected for clarity of script, simplicity of vocabulary, and historical and cultural significance.

106A-106B. Elementary Hittite. (4,4) Three hours of lecture per week. Prerequisites: Background in German and French recommended. Introduction to Cuneiform Hittite language and grammar with readings of selected historical and religious texts.

195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to senior honors candidates. Directed study centered upon preparation of an honors thesis.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment is restricted by regulations shown in this catalog.

Graduate Courses

200A-200B. Advanced Akkadian. (3,3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 101A-101B. Reading of a variety of genres of Akkadian documents and literature. Texts selected are based on the individual interests of the students.

205A-205B. Intermediate Akkadian. (5,5) Five hours of recitation per week. Prerequisites: 10A or equivalent; 20A is a prerequisite to 20B. This course is proficiency oriented. Authentic reading in modern standard and classical Arabic and the understanding and application of Arabic and grammatical rules are emphasized. Students deliver oral presentations and write academic papers in Arabic.

100A-100B. Advanced Arabic. (3,3) Three hours of lecture per week. Prerequisites: 20B. 100A is a prerequisite for 100B. Intensive reading and analysis of texts of various genres, including essays, biographies, and travel literature. (F,SP)

104B. Classical Arabic Prose. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 20B or equivalent. This course is designed for students who wish to concentrate on Arabic of the classical periods of Arab and Islamic civilization. Reading and analysis of literary texts of various genres, including essays, biography, and travel literature. (F)

105B. Classical Arabic Poetry. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Arabic 20B or equivalent. Readings and analysis of poetry from the pre-Islamic Arabic classical periods.

B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix=course satisfies R&C requirement
AC suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

Near Eastern Studies / 393
hours of lecture per week. Prerequisites: 103A-103B.

Reading of selected texts with the purpose of initiating students into the diverse genres of Sumerean literature.

**Egyptian**

**Upper Division Courses**

100A-100B. Elementary Egyptian. (5;5) Three hours of lecture and one hour of discussion per week. Introduction to Middle Egyptian grammar and texts.

101A-101B. Intermediate Egyptian. (3;3) Three hours of lecture per week. Prerequisites: 100A-100B. Readings in Middle Egyptian hieroglyphic and hieratic texts.

H195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to senior honors candidates. Directed study centered upon preparation of an honors thesis.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Instruction in areas not covered by regularly scheduled courses.

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment is restricted by regulations shown in this catalog.

**Graduate Courses**

201A-201B. Later Stages of Egyptian. (3;3) Three hours of lecture per week. Prerequisites: 101A-101B and 102A-102B. Introduction to late Egyptian and Demotic.

202A-202B. Egyptian Texts. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Concurrent or previous enrollment in 201A-201B or consent of instructor. Philological analysis of texts of a single genre and period.

**Hebrew**

**Lower Division Courses**

1A-1B. Elementary Hebrew. (5;5) Five hours of recitation and one hour of laboratory per week.

20A-20B. Intermediate Hebrew. (5;5) Five hours of lecture per week. Prerequisites: 1A-1B.

**Upper Division Courses**

100A-100B. Advanced Hebrew. (3;3) Three hours of lecture per week. Prerequisites: 20A-20B or equivalent. Advanced Hebrew, especially designed for those going on to the study of modern Hebrew literature. Vocabulary building, grammar review, and literary analysis of a sampling of modern texts.

202A-202B. Advanced Late Antique Hebrew Texts. (3;3) Course may be repeated for credit as texts vary. Three hours of lecture per week. Prerequisites: 102A-102B. Historical and literary study of Hebrew and Aramaic Judaic texts (e.g., Talmud and Midrash).

203A. Advanced Medieval Hebrew Texts. (3) Course may be repeated for credit as texts vary. Three hours of lecture per week. Prerequisites: 103A-103B and 105A-105B. Introduction to the languages of rabbinic texts (Mishnah, Tosefta, Talmud, and Midrash) and an introduction to the languages of rabbinic texts.

203A. Later Rabbinic and Medieval Hebrew Texts. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 20A-20B or equivalent. Advanced Hebrew, especially designed for those going on to the study of modern Hebrew literature. Vocabulary building, grammar review, and literary analysis of a sampling of modern texts.

202A-202B. Postbiblical Hebrew Texts. (3;3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 20A-20B or equivalent. Postbiblical Hebrew texts and Persian and Iranian

**Persian Lower Division Courses**

1A-1B. Elementary Modern Persian. (5;5) Five hours of lecture per week. In this elementary course, students learn basic reading, writing, and conversation skills in Persian. Completion of 1A-1B is the prerequisite for 100A.

11A. Reading and Composition for Persian Speaking Students. (5) Five hours of recitation per week. Prerequisites: Rudimentary knowledge of spoken Persian and consent of instructor. Designed for students with rudimentary knowledge of the Persian language: students who have oral skills (speaking/comprehension, though limited), but lack writing and reading abilities, and grammatical and syntactic knowledge. Completion of 11A-11B will prepare students to take Persian 100A, Intermediate Persian.

11B. Reading and Composition for Persian-Speaking Students. (5) Five hours of recitation per week. Prerequisites: 11A or consent of instructor. Designed for students with rudimentary knowledge of the Persian language: students who have oral skills (speaking/comprehension, though limited), but lack writing and reading abilities, and grammatical and syntactic knowledge. Completion of 11A-11B will prepare students to take Persian 100A, Intermediate Persian.

**Upper Division Courses**

100A-100B. Intermediate Modern Persian. (5;5) A continuation of 1A-1B. Five hours of lecture per week. Prerequisites: 1A-1B or consent of instructor. The student will further develop major skills of the language: reading, writing, speaking, and listening comprehension. (F,SP)

101A-101B. Selected Readings in Persian Literature. (3;3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 100A-100B or consent of instructor. Readings in both prose and poetry, drawn chiefly from classical Persian literature, designed to increase reading skills and vocabulary and to provide a transition to the study of more challenging texts.

102A-102B. Readings in Classical Persian Prose. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A or 101B or consent of instructor. Systematic study of representative selections from all periods of classical Persian literature, with attention to the historical and intellectual context.

103A-103B. Classical Persian Poetry. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A or 101B or consent of instructor. Systematic study of poems belonging to all genres of classical Persian poetry, with consideration of questions of prosody, rhetoric, and style.

104A-104B. Contemporary Persian Literature. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 104A or 104B or consent of instructor. The methodologies of teaching Hebrew as a foreign language at the college level. Lectures on contrastive analysis of English and Hebrew, classroom strategies, and the development of instructional materials. Required of all new graduate student instructors in Hebrew.
Semiotics

Upper Division Courses

100A-100B. Aramaic. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100A-100B or equivalent. Topics explore special themes and problems in Persian language and literature. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings are available through the department. (F,SP) Ahmadi

190. Special Topics in Persian. Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100A-100B or equivalent. Topics explore special themes and problems in Persian language and literature. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings are available through the department. (F,SP) Ahmadi

H195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to senior honors candidates. Directed study centered upon preparation of an honors thesis.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Instruction in areas not covered by regularly scheduled courses. (1-4)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment is restricted by regulations shown in this catalog. Graduate Courses

200A-200B. Advanced Persian. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Twelve units of upper division coursework in Persian or consent of instructor. Advanced topics in Persian literature from various periods of Persian culture and literary history.

202A-202B. Persian Sufi Writings. (3) Course may be repeated for credit. Three hours of lecture per week. Readings in all genres of Sufi expression, prose and poetry, with concentration on major figures. (F,SP) Pirnazar

203A-203B. Persian Historical Texts. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Special topics in Persian. Topics vary and are announced at the beginning of each semester.

Professional Courses

201A-301B. Teaching Persian in College. (3) Two hours of discussion per week plus occasional classroom teaching. Students will be introduced to the classics of Persian historiography, from the 10th to the 18th centuries. 298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Persian. Topics vary and are announced at the beginning of each semester.

296. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Reading knowledge of Biblical Hebrew. This two course sequence will study the epigraphic remains of the Northwest Semitic languages. First semester will study inscriptions in Hebrew. Second semester topics will vary from year to year. Possible topics include: Canaanite dialects; El-Amarra Akkadina; Ebialite. The inscriptions will be studied both from the perspective of the comparative history of the Northwest Semitic languages and also for their relevance in illuminating contemporaneous history and culture. 298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Semitics. Topics vary and are announced at the beginning of each semester.

301A-301B. Teaching Persian in College. (3) Two hours of discussion per week plus occasional classroom teaching. Students will be introduced to the classics of Persian historiography, from the 10th to the 18th centuries. 298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Persian. Topics vary and are announced at the beginning of each semester.

Graduate Courses

205A-205B. Ugaritic. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A-101B or 100A-100B or equivalent. Ugarit language and literature with stress on comparative morphology and lexicography. Sequence begins fall.

209A-209B. Northwest Semitic Epigraphy. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Reading knowledge of Biblical Hebrew. This two course sequence will study the epigraphic remains of the Northwest Semitic languages. First semester will study inscriptions in Hebrew. Second semester topics will vary from year to year. Possible topics include: Canaanite dialects; El-Amarra Akkadina; Ebialite. The inscriptions will be studied both from the perspective of the comparative history of the Northwest Semitic languages and also for their relevance in illuminating contemporaneous history and culture. 298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Semitics. Topics vary and are announced at the beginning of each semester.

Turkish

Lower Division Courses

1A-1B. Elementary Modern Turkish. (5-5) Five hours of lecture per week. Sequence begins fall.

Upper Division Courses

100A-100B. Intermediate Modern Turkish. (5-5) Five hours of lecture per week. Prerequisites: 100A-100B or equivalent. Sequence begins fall.

101A-101B. Readings in Modern Turkish. (3-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100A-100B or consent of instructor. Reading of texts in Avestan, western Middle Iranian, and Sogdian, taken from Zoroastrian, Manichaean, and Buddhists texts.

Graduate Courses

298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Turkish. Topics vary and are announced at the beginning of each semester.

Neuroscience (Interdisciplinary Graduate Program)

Office: 3210G Tolman Hall, (510) 642-8915 neuroscience.berkeley.edu
Chair: John J. Nagi, Ph.D.
Professors

Martin S. Banks, Ph.D. University of Minnesota (Optometry)  
Mark D'Esposito, M.D. State University of New York Health Science Center at Syracuse, College of Medicine  
Yuval Dan, Ph.D. Columbia University (Molecular and Cell Biology)

John Flannery, Ph.D. University of California, Santa Barbara (Optometry)  
Ralph D. Freeman, O.D. Ohio State University, Ph.D. University of California, Berkeley (Optometry)  
Jack Gallant, Ph.D. Yale University (Psychology)  
Gian Kang, Ph.D. St. Louis University (Molecular and Cell Biology)  
Stephen E. Glickman, Ph.D. McGill University (Psychology)  
Ehud Isacoff, Ph.D. McGill University (Molecular and Cell Biology)

Richard Irvy, Ph.D. University of Oregon (Psychology)  
William Jagust, M.D. State University of New York, Stony Brook (Optometry)  
Stanley A. Klein, Ph.D. Brandeis University (Optometry)  
Robert T. Knight, M.D. Northwestern University Medical School (Psychology)

Richard Kramer, Ph.D. University of California, Berkeley (Molecular and Cell Biology)  
Harold Lecar, Ph.D. Columbia University (Molecular and Cell Biology)

Dennis M. Levi, Ph.D. University of Houston (Optometry)  
Dan Nagi, Ph.D. California Institute of Technology (Molecular and Cell Biology)

Mauricio Popa, Ph.D. Johns Hopkins University (Molecular and Cell Biology)

David Schaffer, Ph.D. Massachusetts Institute of Technology (Chemical Engineering)  
Arthur P. Shenamara, Ph.D. University of Washington (Psychology)  
Mark A. Tanjung, Ph.D. Yale University (Environmental Science, Policy, and Management)  
Frank S. Werblin, Ph.D. Johns Hopkins University (Molecular and Cell Biology)

Irving Zucker, Ph.D. University of Chicago (Psychology)  
Robert S. Zucker, Ph.D. Stanford University (Molecular and Cell Biology)

Associate Professors

Lu Chen, Ph.D. University of Southern California  
Dan Feldman, Ph.D. Stanford University  
Marla Feller, Ph.D. University of California, Berkeley  
Alexandra Gong, Ph.D. The Scripps Research Institute (Optometry)

Lucia Jacobs, Ph.D. Princeton University (Psychology)  
Bernd Olshausen, Ph.D. California Institute of TechnologyKristin Scott, Ph.D. University of California, San Diego  
Fredric Theunissen, Ph.D. University of California, Berkeley (Psychology)

Assistant Professors

Diana Bautista, Ph.D. Stanford University (Molecular and Cell Biology)  
George Bentley, Ph.D. University of Bristol (Integrative Biology)

Sonia Bishop, Ph.D. King's College London (Psychology)  
Silvia Bunge, Ph.D. Stanford University  
Jose Carmena, Ph.D. University of Edinburgh (Electrical Engineering and Computer Sciences)  
Michael DeWeese, Ph.D. Princeton University

Darlene Francis, Ph.D. McGill University (Psychology)  
Thomas Griffiths, Ph.D. Stanford University (Psychology)  
Daniela Kaufer, Ph.D. Hebrew University (Integrative Biology)

Lance Kleinsmith, Ph.D. The Johns Hopkins University (Psychology)  
Michael Silver, Ph.D. University of California, San Francisco  
Matthew Walker, Ph.D. Medical Research Council, United Kingdom (Psychology)  
Jonathan Wallis, Ph.D. University of Cambridge  
Andrew Wurman, Ph.D. University of California, San Diego (Molecular and Cell Biology)

Professors

Marian C. Diamond, Ph.D. University of California, Berkeley (Integrative Biology)  
Walter J. Freeman (Emeritus), Ph.D.  
Donald A. Glaser (Emeritus), Ph.D.  
Gerald Westheimer (Emeritus), Ph.D.
Graduate Program

The Neuroscience Graduate Program offers a Ph.D. degree in neurosciences for students interested in the interdisciplinary nature of neuroscience research. The program includes, in addition to faculty from the Helen Wills Neuroscience Institute, approximately 50 faculty members from Molecular and Cell Biology, Psychology, Integrative Biology, Physics, Electrical Engineering and Computer Sciences, Chemical Engineering, Environmental Science, Policy, and Management, Vision Science, and Public Health.

Faculty members participate in neuroscience graduate training and research from the molecular and genetic levels to the cognitive and computational levels. Areas of training and research include analysis of ion channels and receptors, and signal transduction mechanisms; formation, function, and plasticity of synapses; control of neural cell fate and pattern formation; neuronal growth cone guidance and target recognition; mechanisms of sensory processing in the visual, auditory, and olfactory systems; development and function of neural networks; computational theory and modeling; motor control; and the neural basis of behavior. The preparations in use range from reductionist models to complex neural systems and include cells in culture, simple invertebrate and vertebrate organisms, and the mammalian cerebral cortex, and human brain imaging.

Faculty in the Neuroscience Graduate Program are involved in three broad research areas: Cellular, Molecular, and Developmental Neuroscience; Systems and Computational Neuroscience; and Cognition, Brain, and Behavior. Individual faculty may be involved in more than one research area.

Applicants to the program should have a bachelor’s degree in science from a four-year college and at least one year of laboratory experience. Applicants are required to submit GRE General Test scores, and are strongly encouraged to submit one GRE Subject Test score (in biochemistry and cell biology, chemistry, psychology, biology, computer science, or physics).

During the first two years in the program, each student is required to take a minimum of three 3- or 4-unit graduate (200-level) courses chosen from a wide range of specialized graduate courses. Graduate advisers help students tailor their coursework to their individual needs and interests. To ensure breadth in didactic coursework, however, students are required to choose courses that are distributed between at least two subdisciplines of neuroscience (i.e., cell, molecular, and developmental neuroscience; systems and computational neuroscience; and cognition, brain, and behavior). Note: Students, with approval from the graduate adviser, may take courses in other specialized areas important for developing their research foundation, such as biochemistry, genetics, statistics, physics, bioengineering, etc. Independent research in different laboratories starts at the beginning of the first year. Students are also required to serve as graduate student instructors for at least two semesters during their first three years of study. Graduate students advance to candidacy for the Ph.D. by passing a qualifying examination at the end of the second year in the program. Students are expected to finish their degree within five to six years.

For detailed information on the graduate program, see neuroscience.berkeley.edu/grad/home, e-mail neurosci@berkeley.edu, or mail your inquiries to Graduate Student Affairs, Neuroscience Institute, University of California, Berkeley, 3210F Tolman Hall #3192, Berkeley, CA 94720-3192.

The Neuroscience Graduate Program has no designated lecture courses, but various affiliated departments offer a wide range of options. A selection is listed below. (For more details, see individual course descriptions.)

General/Survey Courses: Ethics in Scientific Research (MCB 293C).

Cellular, Molecular, and Developmental Neuroscience Courses: Advanced Cellular and Molecular Neurobiology (MCB 261), Advanced Cell Biology (MCB 230), Advanced Genetics (MCB 240), Biochemistry and Molecular Biology (MCB 250), Advanced Developmental Neurobiology (MCB 263), and Advanced Developmental Biology (MCB 231).

Systems and Computational Neuroscience Courses: Advanced Topics in Systems Neuroscience (MCB 262), Functional Neuroanatomy and Laboratory (IB 245 and IB 245L), Behavioral Neuroscience (Psych 210B), Sensory Systems (Psych 210C), Neuronal Mechanisms of Learning and Memory (Psych 2802), Neural Computation (VS 298), and Stress Effects on Brain and Behavior (IB C240).

Cognition, Brain, and Behavior Neuroscience Courses: Cognitive Neuroscience (Psych 210A), Learning and Memory (Psych 210D), Hormones and Behavior (Psych 211), Functional MRI Methods (Psych 214), Seminar: Biological, Cognitive, and Language Development (Psych 240A), and Biological and Public Health Aspects of Alzheimer’s Disease (PH C217).

Recommended Statistical Methods Courses: Data Analysis (Psych 298), Linear Systems Theory (EECS 221A), Random Processes and Systems (EECS 226A), Information Theory and Coding (EECS 229), Analysis of Time Series (Stat 248), and Statistical Learning Theory (Stat 241A).

Other selected seminar courses include: Graduate Seminar on Specialized Neuroscience Topics (MCB 290 series), Graduate Seminar on Specialized Topics in Biological and Cognitive Psychology (Psych 290 series), and Special Seminars in Vision Science (VS 298 series).

The Neuroscience Graduate Program also sponsors an annual campus-wide neuroscience retreat, weekly seminar series, and a graduate student Neuroscience Journal Club.

New Media

(College of Letters and Science)

Program Office: Berkeley Center for New Media, 354 Hearst Mining Memorial Building #1764, (510) 642-0655

Director: Ken Goldberg, Ph.D.
Graduate Adviser: David Bates, Ph.D.

Assistant Professors
Abigail De Korsvik, Ph.D. Northwestern University. Popular culture, film studies, digital media.
Kimiko Ryokai, Ph.D. Massachusetts Institute of Technology. Human-computer interaction, tangible user interfaces.

Overview

New media can transform how we perceive, learn, communicate, and experience the world. What is new is not new and is accelerating rapidly with emerging technologies. New media technologies yet remain deeply rooted in powerful aesthetic, cultural, and political forces. The Berkeley Center for New Media (BCNM) brings together graduate students, faculty, and members of the broader community working at the intersections of technology, art/design, and the humanities. Located in the heart of design and information technologies in the Bay Area, BCNM is based in a public research university known for alternative thinking. Our mission is to understand what is new about each new media from cross-disciplinary and global perspectives that include cultural, political, and aesthetic experience.

BCNM is itself a medium between people and ideas. It serves as a focal point for unconventional historical and contemporary thinking from a diverse community of over 100 affiliated faculty, advisors, and scholars from over 30 UC Berkeley departments, including Architecture, Philosophy, Film Studies, Art History, Performance Studies, Music, and the Schools of Engineering, Information, Journalism, Law, and the Berkeley Art Museum. BCNM presents courses, symposia, and special events for students, researchers, industry, and the public to seek out, consider, and develop innovative theories of contemporary new media. BCNM facilitates a scholarship, hosts critical dialogues, and encourages unorthodox artworks, designs, and experiments.

Designated Emphasis in New Media

BCNM’s designated emphasis is for selected students from any Berkeley doctoral program. It provides advanced skills in analyzing and/or designing future media with an awareness of historical, social, cultural, and other perspectives that might not be visible from any single disciplinary point of view. Students take two core courses—(1) Theory and History of New Media and (2) Art, Technology, Culture—while working across the disciplines to fulfill three breadth requirements in the areas of humanities, technology, and art/design. Students completing the Ph.D. program receive the designation “in New Media” on their diplomas.

Upper Division Courses

190. Special Topics in New Media. (1-4) Course may be repeated for credit as topic varies. One or four units may be taken for credit on an S/U basis. Prerequisites: Graduate standing or consent of instructor. May be taken by students in other disciplines. Course may be repeatable in total for up to four units. Contact the Undergraduate Office for current sections offerings. Topics vary. Topics deal with new media and related issues. Departmental Core. (F,SP) Staff

198. Directed Group Study. (1-3) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. Three hours of work per week for 10 weeks. May be taken on a pass/no pass basis. Prerequisites: Upper division standing. Course may be student-initiated or initiated by a faculty affiliate of the Center for New Media. The subject matter will vary from semester to semester. Student initiated courses will be taught by a student facilitator under the supervision of the faculty sponsor, who must be a faculty affiliate of the Berkeley Center for New Media. (F,SP) Staff

Graduate Courses

200. History and Theory of New Media. (4) Four hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. Required for all students in the Designated Emphasis in New Media. This course provides a broad historical and theoretical background for new media production and practice. The class will map out theoretical approaches from different disciplines and allow graduate students to discuss and apply them to their own research projects. (SP) Staff

201. Questioning New Media. (3) Course may be repeated for credit. Three hours of workshop per week. Prerequisites: Graduate standing or consent of instructor. Required of all students in the Designated Emphasis...
C262. Theory and Practice of Tangible User Interfaces. (4) Students will receive no credit C262 after taking 290. Section 1: Three hours of lecture and one hour of discussion/demonstration per week. This project course explores the theory and practice of Tangible User Interfaces, a new approach to Human Computer Interaction that focuses on the physical interaction with computational media. The topics covered in the course include theoretical framework, design examples, enabling technologies, and evaluation of Tangible User Interfaces. Students will design and develop experimental Tangible User Interfaces using physical computing prototyping tools and write a final project report. Also listed as Information C262. (F) Ryokai

290. Special Topics in New Media. (1-4) Course may be repeated for credit as topic varies. One to four hours of lecture/seminar per week. See Schedule of Classes for current section offerings. Topics offered in new media and related issues. (F,SP) Staff

299. Individual Study or Research. (1-4) Course may be repeated for credit as topic varies. One to four hours of independent study per week. Individual study or research with a center for New Media-affiliated faculty. This course provides the opportunity to search out and study in detail subjects unavailable in the ordinary course offerings. Unit credit will reflect comparable work per unit as regular courses and include both readings with faculty sponsor and independent work. (F,SP)

Nuclear Engineering (College of Engineering)

Department Office: 4153 Etcheverry Hall, (510) 642-5010 www.nuc.berkeley.edu
Chair: James L. Vujic, Ph.D.

Professors
Joohong Ahn, Ph.D. University of California, Berkeley; D.Eng. Concordia University, Montreal. Nuclear reactor design, radiation detection, nuclear reactor control and safety, and environmental issues. (F,SP)

J. Paul Cherry, Ph.D. University of California, Berkeley. Nuclear fuels, nuclear waste management, reactor safety, and risk management. (F)

Daniel J. Kameswaran, Ph.D. Michigan State University. Nuclear and radiological emergency planning, risk analysis, and radiological protection. (F,SP)

William E. Kastenberg (The Daniel M. Tellep Distinguished Professor of Engineering), Ph.D. University of California, Berkeley. Radiation, nuclear materials and chemistry; energy and the environment; fission reactor analysis; fusion science and technology; nuclear thermal hydraulics; laser, particle beam, and plasma technologies; nuclear waste management; risk, safety, and security; and nuclear materials and systems analysis; and ethics and the impact of technology on society. Coursework and research opportunities are available in each area. A proponent for research and teaching on the subject of nuclear technology. The program is chosen so that qualified students make maximum progress in preparation for the doctoral examinations while gaining valuable experience in engineering research for both the master’s and doctoral programs. Formerly Ph.D. and D.Eng. programs. Further information may be obtained from the Department of Nuclear Engineering, Graduate Office, 4148 Etcheverry Hall.

Note: In addition to the courses listed under the Department of Nuclear Engineering, the department offers the following course found in the “Engineering” section of this catalog: 115, Engineering Thermodynamics.

Lower Division Courses

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: 1-2 to be graded on a pass/not passed basis. Sections 3-4 to be graded on a letter-grade basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity for an intensive academic experience. Formerly part of a smaller seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP)

39. Issues in Nuclear Science and Technology. (2) Two hours of lecture per week. Introduction to technical, social, institutional, and ethical issues in nuclear engineering; nuclear reactions and radiation, radiation protection and control, energy production and utilization, nuclear fuel cycle, reactor safety, controlled fusion, nuclear waste, medical, and other applications of radiation, nuclear nonproliferation and arms control and engineering ethics. (SP) Staff

101. Nuclear Reactions and Radiation. (4) Four hours of lecture per week. Prerequisites: Physics 7C. Basic science of nuclear reactions and radioactive decay, fission, fusion, and reactions of low-energy neutrons; properties of the fission products and nuclear actinides; nuclear models and transition probabilities; interaction of radiation with matter. (F) Norman

104. Radiation Detection and Nuclear Instrumentation Laboratory. (3) Two hours of lecture and four hours of laboratory per week. Prerequisites: 101 or equivalent. Formerly 104A. Basic science of radiation measurement, nuclear instrumentation, neutron, and radiation dosimetry. Applications to nuclear and non-nuclear research, energy systems, safety, and environmental science and technology, and a variety of other technologies. (SP) Staff

107. Introduction to Imaging. (3) Three hours of lecture per week. Prerequisites: 101 and 104 or consent of instructor. Introduction to medical imaging physics and systems, including X-ray computed tomography (CT), nuclear magnetic resonance (NMR), position emission tomography (PET), and SPECT; basic principles of tomography and an introduction to unfolding methods; reconstruction effects, computerized statistical, inherent system resolution and human factors. (SP) Vetter

120. Nuclear Materials. (4) Three hours of lecture and one hour of discussion/demonstration per week. Prerequisites: Engineering 45 and an upper division
course in thermodynamics. Effects of irradiation on the atomic and mechanical properties of materials in nuclear reactors. Fission product swelling and release; neutron damage to structural alloys; fabrication and properties of uranium dioxide fuel. (F) Wirth

124. Radioactive Waste Management. (3) Three hours of lecture per week. Prerequisites: Engineering 117 or equivalent course. Components and material flowsheets for nuclear fuel cycle, waste characteristics, storage and disposal of radioactive wastes, compositions, radioactivity and heat generation; waste treatment technologies; waste disposal technologies; safety assessment of waste disposal. (F,SP) Ahn

130. Analytical Methods for Non-proliferation. (4) Three hours of lecture per week. Prerequisites: 101 or equivalent course in nuclear physics, or consent of instructor. Use of nuclear measurement techniques to detect clandestine movement and/or possession of nuclear materials by third parties. Nuclear detection, forensics, signatures, and active and passive interrogation methodologies will be explored. Techniques currently deployed for arms control and treaty verification will be discussed. Emphasis will be placed on common elements of detection technology from the viewpoint of resolution of threat signatures from false positives due to naturally occurring radioactive material. Laboratory work will consist of experiments conducted in the Nucleonics Laboratory featuring passive and active neutron signals, gamma ray detection, fission neutron multiplicity, and U and Pu isotopic identification and age estimation. Students should be familiar with alpha, beta, gamma, and neutron radiation and basic concepts of nuclear fission. Offered even-numbered years. (SP) Morse

150. Introduction to Nuclear Reactor Theory. (3) Three hours of lecture per week. Prerequisites: 101; Mathematics 53 and 54. Mathematical methods used to analyze radiation transport described by various differential, integral, and integro-differential equations. Numerical methods include finite difference, finite element, Monte Carlo, and other approximate techniques to solve the resulting discrete equations on vector and parallel computer systems. (SP) Vujcic, Wirth

161. Nuclear Power Engineering. (4) Three hours of lecture and one hour of discussion/demonstration per week. Prerequisites: Courses (s) in fluid mechanics and heat transfer; junior-level course in thermodynamics. Energy conversion in nuclear power systems; design of fission reactors; thermal and structural analysis of reactor core and plant components; thermal-hydraulic analysis of accidents in nuclear power plants; safety evaluation and engineered safety systems. (F) Peterson

162. Radiation Biophysics and Dosimetry. (3) Three hours of lecture per week. Prerequisites: Upper division course in biology or consent of instructor. Interaction of radiation with matter; physical, chemical, and biological effects of radiation on human tissues; dosimetry units and measurements; internal and external radiation fields and geometry; radiation exposure regulations; sources of radiation and radioactivity; basic shielding concepts; elements of radiation protection and control; theories and models for cell survival, radiation sensitivity, carcinogenesis, and dose calculation. (SP) Vujcic

167. Nuclear Reactor Safety. (3) Three hours of lecture per week. Prerequisites: 150, 161, or consent of instructor. Principles and methods used in the safety evaluation of nuclear power plants. Safety philosophies, design criteria, and regulations. Deterministic and probabilistic methods; reliability analysis, neutron- and thermal-hydraulic transients, radiological consequences, and risk assessment. Design-basis and severe accident analysis, role of engineered safety systems, siting, and licensing. (F) Kastenberg

170A. Nuclear Design: Design in Nuclear Power Engineering. (3) Three hours of lecture per week. Prerequisites: Senior standing or consent of instructor. Formerly 170. Design of various fission and fusion power systems and other physically based applications. Each semester is covered by a class chosen by the class as a whole. In addition to technology, the design should address issues relating to economics, the environment, and risk assessment. (F) Kastenberg

170B. Nuclear Design: Design in Bionuclear, Nuclear Medicine, and Radiation Therapy. (3) Three hours of lecture per week. Prerequisites: 107, 161, or consent of instructor. Formerly 167. A systems approach to the development of procedures for nuclear medicine and radiation therapy. Each semester a specific procedure will be studied and will entail the development of the biological and physiological basis for a procedure, the chemical and biochemical characteristics of the compound used, the production and distribution of radionuclides and/or radiation fields to be applied, and the characteristics of the instrumentation to be used. (SP) Kastenberg

175. Methods of Risk Analysis. (3) Four hours of lecture per week. Prerequisites: Upper division standing. Methodological approaches for the quantification of technological risk and risk based decision making. Probabilistic safety assessment, human health risks, environmental and ecological risk analysis. (F) Kastenberg

180. Introduction to Controlled Fusion. (4) Three hours of lecture and one hour of discussion/demonstration per week. Prerequisites: Physics 7C. Introduction to energy production by controlled thermal nuclear reactions. Nuclear fusion reactions, energy balances for fusion systems, survey of plasma physics; neutral beam injection; RF heating methods; vacuum systems; tritium handling. (F) Morse

198. Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Various. Must be taken on a passed/not passed basis. Prerequisite: Upper division standing. Group studies of selected topics. (F,SP)

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and major advisor. Supervised independent study. Enrollment restrictions apply; see the "Introduction to Courses and Curriculum" section of this catalog. (F,SP)

Graduate Courses

201. Nuclear Reactions and Interactions of Radiation with Matter. (4) Four hours of lecture per week. Prerequisites: 101. Interaction of gamma rays, neutrons, and charged particles with matter; nuclear structure; photodisruption equations and their solution; electromagnetic and nuclear energetics of nuclear reactions; nuclear fission and the fission products; fission and fusion reactions as energy sources. Offered even-numbered years. (SP) Norman

220. Irradiation Effects in Nuclear Materials. (3) Three hours of lecture per week. Prerequisites: 120 or consent of instructor. Physical aspects and computer simulation of radiation damage in metals. Void swelling and irradiation creep. Mechanical analysis of structures under irradiation. Sputtering, blistering, and hydrogen behavior in fusion reactor materials. Offered odd-numbered years. (SP) Wirth

221. Corrosion in Nuclear Power Systems. (3) Three hours of lecture per week. Prerequisites: 120, Materials Science and Engineering 112 recommended. Structural metals in nuclear power plants; properties and fabrication of Zircaloy; aqueous corrosion of reactor components; structural integrity of reactor components under combined loading, neutron irradiation, and chemical environment. Offered even-numbered years. (SP) Wirth

224. Safety Assessment for Geological Disposal of Radioactive Wastes. (3) Three hours of lecture per week. Prerequisites: 124 or upper division course in geology. Multi-barrier concept for the disposal of nuclear waste into heterogeneous media, source term for a near-field model; near-field chemical environment, radioactive materials released from waste packages; radionuclide transport in the near field, effect of temperature on repository performance, effect of water flow, effect of geochemical conditions, effect of engineered barrier alteration; overview of risk assessment, performance index, uncertainty associated with assessment, regulation and standards. (SP) Ahn

225. The Nuclear Fuel Cycle. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor; 124 and 150 are recommended. This course is intended for graduate students interested in acquiring a foundation in nuclear fuel cycle with topics ranging from nuclear fuel reprocessing to waste treatment and final disposal. The emphasis is on nuclear power production and waste disposal, and on the environmental impacts. The goal is for graduate engineering students to gain sufficient understanding in how nuclear-power utilization affects the environment that they are better prepared to evaluate an advanced system that would result in minimized environmental impact. The lectures will consist of two parts. The first half includes mathematical models for individual processes in a fuel cycle, such as nuclear fuel reprocessing, waste solidification, repository performance, and nuclear transmutation in a nuclear reactor. In the second half, these individual models are integrated, which is essential to evaluate environmental impact of a fuel cycle. Offered alternate spring semesters. (SP) Ahn

230. Analytical Methods for Non-Proliferation. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 101, Physics 7C, or equivalent course in nuclear physics. Use of nuclear measurement techniques to detect clandestine movement and/or possession of nuclear materials by third parties. Nuclear detection, forensics, signatures, and active and passive interrogation methodologies will be explored. Techniques currently deployed for arms control and treaty verification will be discussed. Emphasis will be placed on common elements of detection technology from the viewpoint of resolution of threat signatures from false positives due to naturally occurring radioactive material. Laboratory will involve experiments conducted in the Nucleonics Laboratory featuring passive and active neutron signals, gamma ray detection, fission neutron multiplicity, and U and Pu isotopic identification and age estimation. Students should be familiar with alpha, beta, gamma, and neutron radiation and basic concepts of nuclear fission. (SP) Morse

250. Nuclear Reactor Theory. (4) Four hours of lecture per week. Prerequisites: 101, 150, Engineering 117 recommended. Fission characteristics; neutron chain reactions, neutron transport and diffusion theory; reactor kinetics; multigroup methods, fast and thermal neutron calculations; reactor core design, effects of poisons and fuel depletion. Offered odd-numbered years. (F) Greenspan

255. Numerical Simulation in Radiation Transport. (3) Three hours of lecture per week. Prerequisites: 150, Computationally methods used to analyze radiation transport described by various differential, integral, and integro-differential equations. Numerical methods include finite difference, finite element, Monte Carlo, and other approximate techniques to solve the resulting discrete equations on vector and parallel computer systems. (SP) Vujcic

260. Thermal Aspects of Nuclear Reactors. (4) Four hours of lecture per week. Prerequisites: Mechanical
Nutritional Science and Toxicology
(College of Natural Resources)

Department Office: 119 Morgan Hall, (510) 642-6490
nutrition.berkeley.edu
Chair: Joseph L. Napoli, Ph.D.

Gregory W. Aponte, Ph.D. University of California, Davis. Gastrointestinal peptides and nutrient assimilation
Leonard F. Baltzles, Ph.D. University of California, Los Angeles. Food toxicology, chemical carcinogenesis
John J. Bass, Ph.D. University of Wisconsin, Madison. Insecticide chemistry and toxicology
Benito O. de Lumen, Ph.D. University of California, Davis. Cancer and diet
Karen A. Frank, M.D. Stanford University. Genetic approaches to study of mammalian cancer and diet
Marc Hillel, M.D., Ph.D. Massachusetts Institute of Technology. Hepatic metabolic regulation, nutrition and inflammation
Isao Kudo, Ph.D. Osaka City University. Japan. Natural products
Joseph L. Napoli, Ph.D. University of Michigan. Endocrinology of retinoic acid action
Barry Shane, Ph.D. University of London. Regulation of vitamin metabolism
Hei Sook Sul, Ph.D. University of Wisconsin, Madison. Lipid metabolism, adipose cell differentiation
Kenneth J. Carpenter, Emeritus, Ph.D. George Chang [Emeritus], Ph.D.

Associate Professors
Nancy K. Amy, Ph.D. University of Virginia. Obesity, healthcare access
Christopher Vulpie, Ph.D. University of California, San Francisco. Genetic approaches to study of mammalian copper and iron metabolism

Assistant Professors
Diana Chen, Ph.D. University of California, Berkeley. Metabolic regulation, metabolism-based diseases
Andreas Stahl, Ph.D. Scripps Research Institute and University of Hamburg. Metabolic diseases, diabetes, fatty acid metabolism
Wally Wang, Ph.D. Vanderbilt University. Mechanisms underlying regulations of energy homeostasis

Adjunct Professors
Dee E. Jorgensen, Ph.D. University of Michigan. Predictive toxicology in vitro and in silico approaches to predict human toxicity
Richard Krohn, M.D. Harvard Medical School. Genetic and nutritional regulation of lipoprotein metabolism
Robert O. Ryan, Ph.D. University of Nevada, Reno. Structure and function of exchangeable apolipoproteins
Elizabeth C. Theil, Ph.D. Columbia University. Structure of ferritin protein and role it plays in iron overload
George Wolf, Ph.D. Oxford University. The influence of Vitamin A on carcinogenesis

Lecturers
Mikelle McCoin, M.P.H., R.D. Nutrition and Dietetics, R.D.

Director, Didactic Program in Dietetics
Mary Mead, M.Ed., R.D.

Department Overview
The research and curriculum of the Department of Nutritional Science and Toxicology addresses the experimental biology of nutrients, phytochemicals, and diet-borne toxicants, using the techniques of modern biology and chemical analyses to understand the relationship among diet, the metabolic genome, and optimal health/chronic disease. Our goals are to determine the molecular mechanisms of dietary effects on health, and the contribution of individual nutrients to dietary reponses and disease risk. This approach of metabolomic biology will provide detailed insight into the impact of diet on human health and chronic disease risk. We seek to translate lab and model systems to human physiology, and to provide outreach through cooperative extension.

Undergraduate Programs
The Department of Nutritional Science and Toxicology offers two undergraduate majors, nutritional science and molecular toxicology, leading to the

Engineering 106 and 109 or Chemical Engineering 150B. Fluid dynamics and heat transfer; thermal and hydraulic analysis of nuclear reactors; two-phase flow and boiling; compressible flow; steady-state and energy conversion methods. Offered even-numbered years. (F) Peterson

255. Analysis of Nuclear Reactors. (3) Three hours of lecture per week. Prerequisites: 150 and 161. Principles and techniques of economic analysis to determine operating costs; fuel management and fuel cycle optimization; thermal limits on reactor performance, thermal converters, and fast breeders; control and transient problems; reactor safety and reliability. (F) Laboratory of Reactivity from reactor and fuel processing plants. Offered even-numbered years. (F) Greenspan

267. Nuclear Reactor Safety. (3) Three hours of lecture per week. Prerequisites: 150 and 161. Principles and methods used in the safety evaluation of nuclear power plants. Safety philosophy, design criteria and regulations. Deterministic and probabilistic models, reliability analysis, nuclear and thermal-hydraulic transients, radiological consequences, and risk assessment. Design-basis and severe accident analysis, role of engineered safety systems, siting, and licensing. Case studies of accidents. Offered odd-numbered years. (SP) Peterson

275. Principles and Methods of Risk Analysis. (4) Four hours of lecture per week. Prerequisites: Consent of instructor. Civil Engineering 193 and Industrial Engineering 166 recommended. Principles and methodological approaches for the quantification of technological and risk-based decision making. Offered odd-numbered years. (F) Kastenberg

280. Fusion Reactor Engineering. (3) Three hours of lecture per week. Prerequisites: 120 and 180. Engineering and design of fusion systems. Introduction to controlled thermonuclear fusion as an energy economy. Introduction to the physics and technology involved. Case studies of fusion reactor design. Engineering principles of support technology for fusion systems. Offered even-numbered years. (SP) Morse


C282. Charged Particle Sources and Beam Technology. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 260A. Topics in this course will include the latest technology of various types of ion and electron sources, extraction and formation of charge particle beams, computer simulation of beam propagation, diagnostics of ion sources and beams, and the applications of beams in fusion, synchrotron light source, neutron generation, microelectronics, lithography, and medical imaging. The general accelerator technology and engineering course that will be of interest to graduate students in physics, electrical engineering, and nuclear engineering. Also listed as Engineering C282. (F) (SP) (F) (R)

C282L. Charged Particle Beam Instrumentation Laboratory. (1) Three hours of laboratory/discussion per week. Prerequisites: Graduate standing or consent of instructor. Must be taken concurrently with C282 or Engineering C282. Optional laboratory directed to students taking Engineering C282 and Engineering C282L. Ion and electron source operation and beam formation will be demonstrated experimentally. Laboratory sessions will be held at Lawrence Berkeley National Laboratory. (F) (SP) (R)

290B. Subsurface Nuclear Technology. (3) Three hours of lecture per week. Prerequisites: 155, 162 and graduate standing. This course will cover the fundamentals of subsurface nuclear technology and its applications to: (1) infer the porosity, the density, elemental composition, and fluid saturation of subsurface media; (2) identify fluid movement in reservoirs; (3) determine fluid characteristics in complex fluid regimes and tight reservoirs from borehole diagnostics, using neutron and photon measurement and simulation techniques. Application of computational methods will also be covered. (F,SP) Badruzzaman, Vujic

290G. Scientific and Regulatory Basis for Environmental Protection in Nuclear Fuel Cycle. (3) Three hours of lecture per week. Prerequisites: Graduate standing or permission of instructor; 124, 224, or 225 recommended. This course is intended for graduate students interested in acquiring a foundation in the scientific and regulatory basis for environmental safety for nuclear fuel cycles, including basic computational capability. The course contents consist of: (1) the standards and regulations, (2) technical bases for assessing environmental impacts of nuclear fuel cycle facilities under normal operation and accidental situations, (3) interpretation of environmental impact assessment results, and (4) student mini-projects. (F) Abramo

290H. Interaction of Intense Charged Particle Beams with Electric and Magnetic Fields. (3) Three hours of lecture per week. Prerequisites: Required: undergraduate level dynamics and electromagnetic theory. Recommended: basic plasma physics. Comprehensive understanding of charged particle accelerators and applications to medicine and fusion reactor systems with high space charge intensity. Provides a foundation for research and design of systems with intensities sufficiently high, so that mutual interactions of the particles may be neglected and acceleration of any beam by applied electric and magnetic fields can not be neglected. Methodologies systematically developed by applying dynamics, electromagnetic theory, and plasma physics. Appropriate for students in engineering and physics. Offered odd-numbered years. (SP) Verboncoeur

295. Nuclear Engineering Colloquium. One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Presentations on current topics in nuclear engineering will be given by experts from government, industry and universities. Open to the campus community. (F,SP) Peterson

298. Group Research Seminars. (1) Course may be repeated for credit. One and one-half hours of seminar per week. This course is taken on a satisfactory/unsatisfactory basis. Seminars in current research topics in nuclear engineering: Section 1—Fusion; Section 2—Nuclear Waste Management; Section 3—Nuclear Hydrodynamics; Section 4—Nuclear Chemistry; Section 5—Nuclear Materials; Section 7—Fusion reactor design; Section 8—Nuclear Instrumentation. (F,SP) Staff

299. Individual Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Investigation of advanced nuclear engineering problems. (F,SP) Staff

300. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. May be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. (F,SP) Staff

301. Teaching Techniques in Nuclear Engineering. (1-3) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for doctoral degree. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff

302. Professional Courses

301. Teaching Techniques in Nuclear Engineering. (1-3) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for doctoral degree. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff

302. Professional Courses

308. Professional Courses

310. Teaching Techniques in Nuclear Engineering. (1-3) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for doctoral degree. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff
Nurtural Toxicology focuses on the adverse effects of food use, as well as the study of food properties and processing of food materials. Dietetics prepares students for careers as registered dietitians (RDs). RDs translate the science of nutrition into practical applications for individuals and groups in clinical, food service, or community settings. Graduates for careers as registered dietitians (RDs). RDs translate the science of nutrition into practical applications for individuals and groups in clinical, food service, or community settings.

Nutritional Science Major

The nutritional science major combines a strong foundation in the biological and chemical sciences with a focus on one of two areas of specialization: Physiology and Metabolism focuses on the biochemical and physiological study of nutrient use, as well as the study of food properties and processing of food materials. Dietetics prepares students for careers as registered dietitians (RDs). RDs translate the science of nutrition into practical applications for individuals and groups in clinical, food service, or community settings. Graduates for careers as registered dietitians (RDs). RDs translate the science of nutrition into practical applications for individuals and groups in clinical, food service, or community settings.

Molecular Toxicology Major

The molecular toxicology major combines a strong foundation in the biological and chemical sciences with a focus on the hazardous and beneficial effects of natural and man-made toxic agents. From industrially produced environmental contaminants and designer drugs to naturally occurring herbs and food products, this field of study applies molecular and computational methods to give students a better understanding of how these agents interact with living organisms and what should be done to ensure human health and safety.

Minors

Students who have pursued basic coursework in biological sciences under other majors may be eligible for one of the two minor programs offered by the Department of Nutritional Science and Toxicology. Both minors require a minimum GPA of 2.5 and the completion of 15 units. The minor in nutritional science requires Nutritional Science 10, 103, 160, and six additional elective units of upper division coursework in the department. The minor in toxicology requires Nutritional Science 110, C114, 120, 121, and PH 172. All courses must be taken on the Berkeley campus for a letter grade. No course substitutions are allowed. Interested students should obtain the requirements from the department before starting the minor. Students will be awarded the minor following satisfactory completion of certification from the department.

Graduate Programs

The department administers two Ph.D. programs in Molecular and Biochemical Toxicology and Molecular Toxicology. The Molecular and Biochemical Toxicology program provides advanced training in the theory and techniques of molecular and biochemical studies of nutrients and phytotoxins in humans, and in mammals that serve as models for humans. Molecular Toxicology focuses on the adverse effects of chemicals on living organisms and how these effects are modulated by genetic, physiologic, and environmental factors. For more information, please consult the catalog entry for each program.

Honors Program

Students who are interested in the honors program in nutritional science or molecular toxicology should apply during their junior or senior year. The honors program is individual research, NST 196, for two semesters under the supervision of a faculty member. The supervised independent research honors research is specific to aspects of the nutritional science and toxicology major, followed by an oral presentation and written report. Acceptance in the CNR honors program is required through an application process. Please contact the CNR Office of Instruction and Student Affairs in 260 Mulford Hall, or the NST student advisors for details.

For more information, please visit the student affairs office in 124 Morgan Hall or call (510) 642-2879 (undergraduate) and (510) 643-2863 (graduate).

Lower Division Courses

10. Introduction to Human Nutrition. (3) Students will receive no credit for 10 after taking 103 or 160. Two hours of lecture and one hour of discussion per week. Formerly Nutritional Sciences 10. This course provides an overview of digestion and metabolism of nutrients. Foods are discussed as a source of nutrients, and the evidence is reviewed as to the effects of nutrition on health. The emphasis of the course is on issues of current interest and on public health problems of food and nutrition. Students are required to record their own diet, calculate its composition, and evaluate its nutrient content in light of their particular needs.

11. Introduction to Toxicology. (2) Two hours of lecture per week. Prerequisites: Open to students pursuing science and non science majors. Discussion of principles for the evaluation of toxic hazard of natural and man-made substances. Introduction to the environment, workplace, food, drug, and drinks. The bases for species selectivity, individual variations in sensitivity and resistance, and the combined effects of toxic agents will be addressed. Issues related to the impact of toxic agents in modern society will be emphasized.

12. Directed Group Study. (1-3) Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Discussion of a current research topics in toxicology and their applications in evaluating the safety of natural and man-made toxins. Mechanisms of metabolic activation, detoxification, and selective toxicity are emphasized.

C114. Pesticide Chemistry and Toxicology. (3) Three hours of lecture per week. Prerequisites: Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor. Formerly Nutritional Sciences 99. Study of special topics in nutritional science that are not covered in depth in regular courses. (SP) Staff

98. Directed Group Study. (1-3) Course may be repeated for credit. One hour of group study per week per unit. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Formerly Nutritional Sciences 99. Lower division laboratory and independent research under the direction of a faculty supervisor. Written report required upon completion of the project. Enrollment is restricted by regulations in this catalog. (F,SP) Staff

99. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Three hours of independent study per week. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Formerly Nutritional Sciences 99. Lower division laboratory and independent research under the direction of a faculty supervisor. Written report required upon completion of the project. Enrollment is restricted by regulations in this catalog. (F,SP) Staff

Upper Division Courses

103. Nutrient Function and Metabolism. (3) Three hours of lecture per week. Prerequisites: 10. Molecular and Cell Biology 32, and Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor. Formerly Nutritional Sciences 103. Delivery of nutrients from foods to mammalian cells; major metabolic pathways; function of nutrients in energy metabolism; nitrogen and lipid metabolism, structural tissues and regulation: essentiality, activity, storage, excretion, and toxicity of nutrients. (F) Fleming

104. Human Food Practices. (2) Two hours of lecture and one hour of discussion per week. Prerequisites: 10 recommended. Formerly Nutritional Sciences 104. Historical, geo-ecological, biological, cultural, socio-economic, personal and political determinants of human diets. Community food and nutrition problems and programs. Food safety and consumer protection. Contributions of the pursuit of multidisciplinary degrees in nutrition policy and planning. (SP) Staff

106. Introduction to Food Science. (3) Three hours of lecture per week. Prerequisites: Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor. Formerly Nutritional Sciences 106. Evaluation of the chemical, physical, functional, and nutritional properties of foods. Emphasis on how these properties, and preparation, processing, and storage affect quality characteristics of food products. (F) McCoin

108A. Introduction and Application of Food Science. (3) Three hours of lecture per week. Prerequisites: Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor. Formerly Nutritional Sciences 110. A comprehensive survey of the principles of modern toxicology and their applications in evaluating the safety of natural and man-made toxins. Mechanisms of metabolic activation, detoxification, and selective toxicity are emphasized. (F) Bjeldanes, Wang

110. Toxicology. (3) Three hours of lecture per week. Prerequisites: Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor. Formerly Nutritional Sciences 110. A comprehensive survey of the principles of modern toxicology and their applications in evaluating the safety of natural and man-made toxins. Mechanisms of metabolic activation, detoxification, and selective toxicity are emphasized. (F) Bjeldanes, Wang

112. Introduction to Pharmacology and Toxicology. (3) Three hours of lecture per week. Prerequisites: Organic chemistry; upper division biological sciences. Principles of drug action, toxicology. Brief survey of major groups of chemicals used in therapy. Also listed as Public Health C172. (SP) Wei

114. Pesticide Chemistry and Toxicology. (3) Three hours of lecture per week. Prerequisites: Introductory courses in organic chemistry and biology, or consent of instructor. Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity. Also listed as Environ Sci, Policy, and Management C148. (SP) Casida

C119. Advanced Toxicology. (3,4) Three to four hours of lecture per week. Prerequisites: Introductory courses in toxicology to answer questions about safety and risk. Using a case-study approach, participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals, including drugs and environmental contaminants. Discussion of current topics of controversy in the field of toxicology. Also listed as Public Health C172. (SP) M. Smith

120. Molecular Toxicology. (3) Three hours of lecture per week. Prerequisites: 110 or consent of instructor. Formerly Nutritional Sciences 120. Molecular toxicology attempts to understand the mechanisms by which hazardous compounds cause their toxic effects. The courses focus on our understanding of the important tissue and cellular components involved in chemical
exposure from entry to effect to exit. Topics include: metabolism and mechanisms of toxicants, toxicogenomics, toxicant effects in individuals and groups, and tools to predict toxicology. (SP) *Vulpis*

121. Computational Toxicology. 3. Three hours of lecture and two hours of computer laboratory per week. Prerequisites: Molecular and Cell Biology 102 or consent of instructor. Formerly Nutritional Sciences 121. Introducing the use of bioinformatics to decipher the molecular and chemical nature of the toxicants to which the body is exposed and the biological consequences of these experiences, personal experiences, dietary experiences, and field work in institutional settings. (SP) *Staff*

135. Food Systems Organization and Management. (4) Three hours of lecture and three hours of field work per week. Prerequisites: Consent of instructor. Formerly Nutritional Sciences 135. Principles of organization and management applied to institutional food service systems: production and delivery systems, management of resources, quality assurance, equipment, layout, marketing, personnel management, fiscal management, and policy, and management of service systems: production and delivery systems, management of resources, quality assurance, equipment, layout, marketing, personnel management, fiscal management, and policy. (SP) *Staff*

150. Mechanisms of Metabolic Regulation. (3) Three hours of lecture per week. Prerequisites: 103, or Molecular and Cell Biology 102 or equivalent. Formerly Nutritional Sciences 150. Principles of metabolic regulation in higher animals. Integration of metabolic pathways and fluxes emphasizing experimental data and understanding mechanisms of nutrient affects. Advances in methods for studying metabolism, ranging from in vivo genetics to omics. This course provides the foundation for pursuing research in nutrient biochemistry/molecular biology, and for understanding nutrient and endocrine related diseases such as diabetes, obesity, osteoporosis, dementia, cardiovascular and other diseases. (F) *Napolitano, Suli*

159. Human Diet. (4) Three hours of lecture and one hour of discussion per week. Since we eat every day, wouldn't it be useful to learn more about human dietary intake and metabolism? This course will provide an overview of the complex interrelationship between humans and their foods. Topics include: the human dietary niche, biological variation related to diet, diet and disease, domestication of crops, food systems, processing technology, development of regional cuisines, modern diets and their problems, food taboos, human attitudes toward foods, and dietary politics. Also listed as Environ Sc, Policy, and Management C159. (SP) *Milton*

160. Human Nutrition: Normal Physiology and Pathophysiology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 103, or Molecular and Cell Biology 102 or equivalent. Formerly Nutritional Sciences 160. The normal regulation of human nutrient metabolism and the physiopathological basis of common nutritional diseases will be discussed. Focus will be on metabolic integration in the whole organism. Conditions covered will include obesity, starvation, malnutrition, diabetes, cardiovascular disease, osteoporosis, anemia, alcohol, nutrition during the life cycle, pregnancy, infancy, old age, and other states. (SP) *Staff, Hellerstein, Ryan*

161A. Medical Nutrition Therapy. (4) Four hours of lecture per week. Prerequisites: 103 or Molecular and Cell Biology 161. This lecture course addresses nutrition as a component of disease treatment. As we explore medical nutrition therapy, we will also study disease pathogenesis, diagnosis, and current medical and pharmacological treatments. Methods of nutrition assessment and nutrient delivery in a medical setting will be covered. (F) *Mead*

161B. Applications in Medical Nutrition Therapy. (4) Four hours of lecture per week. Prerequisites: 103, 160, 161A or consent of instructor. Formerly Nutritional Sciences 161L. Theory and concepts from 161A are applied through a variety of methods including completion of disease specific case studies, nutrition assessments, care plans, and medical record documentation. Skills practiced include diet calculation, special diets, and enteral and parenteral nutrient support. Product analysis and supermarket surveys are completed. (SP) *McCoin*

166. Nutrition in the Community. (3) Three hours of lecture per week. Prerequisites: 100 recommended; upper division standing with faculty approval. Formerly Nutritional Sciences 166. This course addresses basic nutrition in the context of the community. It explores nutrition programs that serve various segments of the population and the relationships between nutrition policy at the local, national, and international levels. Community assessment is used as the basis for program planning, implementation, and evaluation. The specific needs of infirm (infants, children, women, and the elderly) are considered and questions of food security are investigated. (F) *Crawford*

170. Experimental Nutrition Laboratory. (4) Students will receive no credit for 170 after taking 171. Two hours of lecture and six hours of laboratory per week. Prerequisites: 100, and a course in statistics. Formerly Nutritional Sciences 170. Basic principles and techniques used in human and animal nutrition research. Students design, execute, and analyze experiments, carry out experiments, partake in laboratory experiences, and write a laboratory report on a topic selected from the current research literature in nutritional sciences. (F,SP) *Staff*

171. Nutrition and Toxicology Laboratory. (4) Students will receive no credit for 171 after taking 170. One hour of lecture, one hour of discussion, and six hours of laboratory per week. Prerequisites: 100, Molecular and Cell Biology 102 or equivalent. Formerly Nutritional Sciences 141. Formerly Nutritional Sciences 171. Basic principles and techniques used in human and animal nutrition and toxicology research. Students design, execute, and analyze experiments, carry out experiments, partake in laboratory experiences, and write a laboratory report on a topic selected from the current research literature in nutritional sciences. (F,SP) *Staff*

190. Introduction to Research in Nutritional Sciences. (1) One hour of lecture/discussion per week. Prerequisites: 103. Formerly Nutritional Sciences 190. Students will be asked to prepare an oral and written report on a topic selected from the current research literature in nutritional sciences. (F,SP) *Staff*

192. Junior Seminar in Dietetics. (1) One hour of lecture/discussion per week. Prerequisites: Upper division standing and consent of instructor. Formerly Nutritional Sciences 192. This seminar course explores the professional roles and responsibilities of dietitians as well as career opportunities within the field. Current issues in the practice of dietetics will be discussed. Students will do research and present an oral report to the class. Each student will develop his or her professional portfolio. (F) *Mead*

193. Introduction to Research in Toxicology. (1) One hour of seminar per week. Prerequisites: 110 or consent of instructor. Formerly Nutritional Sciences 193. Students will be asked to prepare an oral and written report on a topic selected from the current research literature in toxicology. (SP) *Kubo*

194. Senior Seminar in Dietetics. (2) One hour of lecture and one hour of discussion per week. Prerequisites: Upper division standing and consent of instructor. Formerly Nutritional Sciences 194. This course will cover the changes that are occurring in the field of dietetics. Students will explore revisions of the national nutritional standards and guidelines, issues related to complementary and alternative nutrition practices, the area of genomics as it is expected to affect practice, professional ethics in the changing health care environment, reimbursement for professional services, legislation related to public health, dietetics, and other emerging issues. (SP) *Mead*

196. Honors Research. (4) Course may be repeated for credit. Three hours of independent study per week. Prerequisites: Upper division standing and minimum GPA. See CNR Honors web site for current minimum GPA. Formerly Nutritional Sciences H196. Supervised independent honors research specific to aspects of the Nutritional Science and Toxicology major, with emphasis on research and development and food safety will be emphasized. (SP) *Staff*

197. Field Study in Food and Nutritional Sciences. (1-3) Course may be repeated for credit. Approximately three hours field study per week per unit. Must be taken on a pass/no pass basis. Formerly Nutritional Sciences 197. Supervised experience in off-campus organizations relevant to specific aspects of foods and nutritional sciences. Regular individual meetings with faculty sponsor and written reports required. (F,SP) *Staff*

198. Directed Group Study. (1-3) Course may be repeated for credit. One hour of group study per week per unit. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Formerly Nutritional Sciences 198. Study of special topics in food science or nutrition that are not covered in depth in regular courses. (F,SP) *Staff*

199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Approximately three hours of laboratory per week per unit. Must be taken on a pass/no pass basis. Prerequisites: Upper division standing and consent of instructor. Formerly Nutritional Sciences 199. Upper division laboratory and independent research under the direction of a faculty supervisor. Written report required upon completion of the project. (F,SP) *Staff*

Graduate Courses

200. Advanced Organizational Nutrition and Metabolism. (3) Three hours of lecture/discussion per week. Prerequisites: 103, 160, and Molecular and Cell Biology 102 or equivalent. Formerly Nutritional Sciences 200. Advanced topics in the fields of organizational nutrition and metabolism. Emphasis on concepts and research methodologies relating to nutritional metabolism and its regulation in intact organisms is studied. Covered areas include the nutritional requirements of different segments of the population, integration of metabolic pathways, research techniques, nutritional diseases, and specific topics such as vitamins, minerals, and trace elements. (SP) *Hellerstein*

C210. Dietary Determinants of Cancer, Heart Disease, and Aging. (3) Three hours of lecture per week. The influence of diet on DNA damage, cancer, and aging will be discussed with an emphasis on micronutrient deficiencies as a major contributor to DNA damage, cancer, and aging. For example, the role of diet on atherosclerotic heart disease will be covered with an emphasis on the role of dietary constituents proposed to have either toxic or preventive effects in the artery wall. Chemicals that may be present in foods will be discussed. Also listed as Molecular and Cell Biology C209. (SP) *Ames*

211A-211B. Introduction to Research in Nutritional Science. (4-8-4) One hour of discussion and four hours of laboratory per week per unit. Credit and grade will be assigned on completion of each part. Prerequisites: Consent of instructor. Formerly Nutritional Sciences 211A-211B. Closely supervised experimental work under the direct supervision of faculty members; an introduction to experimental methods and research approaches in areas of nutritional science. (F,SP) *Napolitano*

C219. Advanced Toxicology. (3.4) Three to four hours of lecture per week. The application of toxicology to answering questions as a test of drug effects. Using a case-study approach, participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals. Also listed as Public Health C270B. (SP) *Smith*

220. Molecular Toxicology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 103, 110, C119 or consent of instructor. Molecular toxicology attempts to understand the mechanisms by which hazardous compounds cause their toxic effects. The course will focus on our current understanding of the important toxic components involved in chemical exposure from entry to effect by an oral presentation, and a written report. (F,SP) *Staff*

Department of Nutritional Science and Toxicology / 401

R prefix=course satisfies R&C requirement

C prefix=course satisfies requirements of major

H prefix=honors course

*Professor of the Graduate School

Recipient of Distinguished Teaching Award
298. Directed Group Studies. (1-4) Three hours of lecture and one hour of discussion per week. Prerequisites: 103, or Molecular and Cell Biology 102 or equivalent. Formerly Nutritional Sciences 250. Principles of metabolic regulation in higher animals. Integration of metabolic pathways and fluxes emphasizing experimental data and understanding mechanisms of nutrient affects. Advances in methods for studying metabolism, ranging from isotopic to molecular genetics techniques. This course provides the foundation for pursuing research in nutrient biochemistry/molecular biology, and for understanding nutrient and endocrine related diseases, such as diabetes, birth defects, osteoporosis, obesity, and cardiovascular disease. (F, SP) Staff

299. Advanced Seminars in Nutritional Science. (1-2) Course may be repeated for credit. One to two hours of lecture/discussion per week. Prerequisites: Graduate standing. Formerly Nutritional Sciences 290. Advanced study of topics in nutritional sciences. More than one section may be taken simultaneously. (F, SP) Staff

292. Graduate Research Colloquium. (1) Course may be repeated for credit. One hour of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Formerly Nutritional Sciences 292. Presentations by graduate students of research proposals and results of their research. Participation in discussion and evaluation of others' presentations is required. (F, SP) Staff

293. Research Seminar. (1) One hour of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. Formerly Nutritional Sciences 293. Presentation and discussion of current faculty research projects and experimental techniques in nutritional sciences. Intended primarily for first year graduate students. (F) Staff

296. Research Review in Nutritional Science and Toxicology. Course may be repeated for credit. One to two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Review of current literature and discussion of results of experimental work. (F, SP) Staff

298. Directed Group Studies. (1-4) Course may be repeated for credit. One hour of lecture/discussion per week per unit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. Formerly Nutritional Sciences 298. Special study in various fields of nutritional sciences. Topics will vary depending on interests of qualified graduate students and availability of staff. (F, SP) Staff

299. Nutritional Science and Toxicology Research. (1-12) Course may be repeated for credit. Approximately four hours of research per week per unit. Prerequisites: Graduate standing and consent of instructor. (F, SP) Staff

602. Individual Study for Doctoral Students. (1-4) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Approximately four hours of study per week per unit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. Formerly Nutritional Sciences and Toxicology 602. Individual study in consultation with the major field adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D. (F, SP) Staff

Professional Courses

301. Professional Preparation: Teaching in Nutritional Sciences. (1-2) One hour of lecture/discussion per week per unit. Prerequisites: Consent of instructor. Formerly Nutritional Sciences 301. Creative approaches to teaching nutrition to diverse audiences are emphasized. Participants will identify needs of target populations, formulate educational objectives, design and/or use motivational teaching strategies, and evaluate the impact of their teaching on knowledge, attitudes, and behavior. Undergraduates may teach nutrition to elementary school children. Graduates may become teaching assistants. (F) Bjel-danes, Ikeda

302. Professional Preparation: Supervised Teaching Experience in Nutrition. (1-4) Course may be repeated for credit. Three hours of supervised teaching experience per week per unit. Prerequisites: 301 (may be taken concurrently) and consent of instructor. Formerly Nutritional Sciences 302. Practical supervised experience in teaching nutrition and food science at the university level; planning, presentation, and evaluation of instructional units. (F, SP) Bjel-danes

Operations Research and Management Science

(College of Letters and Science)

Department Office: Department of Industrial Engineering and Operations Research, 4135 Etcheverry Hall, ieor.berkeley.edu

Overview

Operations Research and Management Science (ORMS) is a capped major in the College of Letters and Science administered by the Department of Industrial Engineering and Operations Research (IEOR). In the ORMS major, students develop solid quantitative, model building, and problem solving skills through core courses in mathematics, statistics, and operations research, and will learn how to apply these skills in solving problems in an area of their choice.

We outline four possible concentrations below, but many other areas can also benefit from applying and operations research perspective. Students may design their own concentrations according to their interests, with guidance from their faculty advisor. The four possible areas of concentration are:

1. Decision Making in Economic Systems;
2. Decision Making in Industrial and Service Systems;
3. Decision Making in Societal Systems; and

Declaring the ORMS Major

The following courses must be completed to declare the ORMS major: Economics 1 or 2 or 3; Math 53 and 54; and Business Administration 10.

After successful completion of the courses required to declare with minimum GPA of 3.20, as well as 3.0 overall GPA, you can be considered for admission to the Letters and Science ORMS major. Declaration limits of 25 students are in place for this major.

ORMS in Letters and Science vs. IEOR in the College of Engineering

An essential difference between the two majors is that Industrial Engineering and Operations Research program in the College of Engineering requires a greater number of physics, chemistry, and engineering courses than the ORMS program, which is more flexible and focuses on development of an area of interest/application. In ORMS, students need to select a focus area of application before their senior year.

The ORMS major confers the Bachelor of Arts degree, while the IEOR major confers a Bachelor of Science.

ORMS Curriculum

Lower Division Requirements:

- Math 1A—Calculus (4 units)
- Math 1B—Calculus (4 units)
- Math 53—Multivariable Calculus (4 units)
- Math 54—Linear Algebra and Differential Equations (4 units)
- Engineering 7—Introduction to Computer Programming (4 units)
- Economics 1, 2, or 3—Introduction to Economics (4 units)
- Business Administration 10—Principles of Business (3 units)

Upper Division Requirements:

- Statistics 134—Concepts of Probability (3 units) or IEOR 172: Probability and Risk Analysis (3 units)
- Economics 101A—Economic Theory Micro (4 units)
- IEOR 131—Stimulation (3 units)
- IEOR 160—Operations Research I (3 units)
- IEOR 161—Operations Research II (3 units)
- Four clustered electives: see below (12 units)

A Concentration of Four Clustered Electives:

With prior approval from a faculty adviser, students select a minimum of four upper division elective courses to form a coherent cluster, or concentration, in an area where operations research is applied. Courses in other departments may count toward this requirement if they have substantial relevance at an appropriately advanced level. Suggested clustered elective choices, as well as additional information on the ORMS major and requirements, can be found at ieor.berkeley.edu/AcademicPrograms/Ugrad/index.htm.

Honors Program

Students enter the honors program by application. Applications are available in the Advising Office, 4145 Etcheverry Hall. If admitted, students must satisfy the requirements listed below. An official notation of the honors degree is made on their final Berkeley transcripts.

Before applying to the program, students must have at least 3.5 GPA overall and 3.7 GPA in the major. To graduate with honors, students must:

1. Find a faculty sponsor appropriate for an original research project that he or she wishes to do and enroll in two semesters (6 units) of the honors thesis course (H196A-196B). Alternatively, a student may take two approved graduate courses in operations research or a related field, and achieve at least an A- in each course.
2. Maintain a minimum 3.5 GPA overall and 3.7 in the major.

A Concentration of Four Clustered Electives:

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<th>Course</th>
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<tr>
<td>IEOR 161—Operations Research I (3 units)</td>
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<td>IEOR 162—Operations Research II (3 units)</td>
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<td>IEOR 163—Operations Research III (3 units)</td>
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<td>IEOR 164—Operations Research IV (3 units)</td>
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Optometry (School of Optometry)

Office of the Dean: 351 Minor Hall #2020, (510) 642-3414
Office of Admissions: 351 Minor Hall #2020, (510) 642-9537
optometry.berkeley.edu
Dean: Dennis M. Levi, O.D., Ph.D.
Associate Dean for Academic Affairs: Gunilla Haegerström-Portny, O.D., Ph.D.
Associate Dean for Clinical Instruction: John C. Corzine, O.D.
Associate Dean for Academic Affairs: Richard van Sluieters, O.D., Ph.D.
Special Assistant to the Dean for External and Professional Affairs: Lawrence S. Thal, O.D., M.B.A.

Directors and Faculty:

Darrell B. Carter (Emeritus), O.D., M.S.

Assistant Professors:

Edward J. Revelli, O.D.

Associate Dean for Student Affairs and Head Graduate Admissions: Richard van Sluieters, O.D., Ph.D.

Directors of Residency Programs:

Christina S. Wilmer, O.D.

Residency Supervisor: A. Mika Moy, O.D.

Chair, Graduate Group in Vision Science: Austin Roorda, Ph.D.

Professors:

Anthony J. Adams, O.D., Ph.D. Color vision; assessment of retinal function
Ilan L. Bailey, O.D., M.S. Low vision; clinical optics; clinical assessment of visual performance
Martin S. Banks, Ph.D. Infant vision; visual development and spatial vision
John P. Flann, Ph.D. Cell and molecular biology of the retina in normal and diseased states; neurobiology
Suzanne M. J. Fleisig, O.D., Ph.D. Microbiology, virology, infectious disease, cornell and renal physiology
Ralph J. Freeman, O.D., Ph.D. Neurophysiology and psychophysics of visual development and plasticity
Gunilla Haegerström-Portny, O.D., Ph.D. Clinical psychophysics and basic aspects of human color vision; binocular vision
Stanley A. Klein, Ph.D. Spatial vision; psychophysical methods and vision test design; nonlinear analysis of visual perception
Dennis M. Levi, O.D., Ph.D. Mechanisms of pattern vision, influence of abnormal visual development
Clifton M. Mchor, O.D., Ph.D. Binocular vision: human development, ocular motility, strabismus, and amblyopia
Richard L. Van Sluieters, O.D., Ph.D. Organization, development, and plasticity of mammalian visual systems
Christine F. Wildsoet, O.D., Ph.D. Myopia and eye growth regulation; computational models for mechanisms underlying emmetropization and myopia, etiology of human myopia, myopia, optical, biological, and pharmacological perspectives
Karen K. DeValos (Emerita), Ph.D.
Jay M. Encock (Emeritus), O.D., Ph.D.
Robert B. Mandell (Emeritus), O.D., Ph.D.
Diane Flax (Emeritus), O.D., Ph.D.
Kenneth A. Polse (Emeritus), O.D., Ph.D.

Associate Professors:

Susanna Chung, O.D., Ph.D. Pattern vision, visual images, low vision rehabilitation
Xiaohua Gong, Ph.D. Use of genetically engineered animal models for multidisciplinary study of development and diseases of the eye
Karsten Gronert (Emerging) Ph.D. Ocular inflammation/immunology and wound healing
Bruno Olshausen, Ph.D. Computational models of perception
Austin Roorda, Ph.D. Adaptive optics, optics of the human eye

Assistant Professors:

Lu Chen, M.D., Ph.D. Lymphangiogenesis
Michael Silver, Ph.D. Neural correlates of human visual perception and attention

Professors of Clinical Optometry:

Robert B. DiMartino, O.D., M.S. Ocular disease and ocular therapeutic pharmacology, electronic instructional technology
Deborah A. O’Neil-Bixler, O.D., Ph.D. Assessment of visual abilities in infants, children and special needs populations; visual evoked potentials; vision screening; and photorefraktion
Wayne A. Verdon, O.D., Ph.D. Clinical and visual electrophysiology, inherited and acquired retinal diseases, and color vision

Senior Lecturers:

Darrell B. Carter (Emeritus), O.D., Ph.D. J. David Gilding (Emeritus), O.D., M.S.
Michael G. Harris (Emeritus), O.D., J.D., M.S.

Affiliated Professors:

Brian Barsky, Ph.D. (Electrical Engineering and Computer Sciences)
Eugene Switkes, Ph.D. University of California at Santa Cruz, (Chemistry and Psychology)

Clinical Professors:

George Bresnick, M.D.
Dennis S. Burger, M.D.
Thomas M. Callan, O.D.
Stephen R. Chiu, O.D.
Bernard J. Dolan, O.D., M.S.
Robert B. Greer, O.D.
Patsy L. Harvey, O.D., M.P.H.
Craig K. Hikasa, O.D., M.P.H.
Donald R. Korb, O.D.
Edward J. Revelli, O.D.
Donald S. Santer, O.D.
A. Lee Slaaf, O.D., M.S.
Lawrence S. Thal, O.D., M.B.A.
Leslie L. Walls, O.D., M.D.
Gerald Westheimer, O.D., Ph.D., F.R.S.
John J. Weiss, O.D.

Associate Clinical Professors:

Charles H. Bailey, O.D.
Frank G. Balescrey, O.D.
Shrin Barz, M.S., M.D.
Kathryn A. Boo, O.D.
John C. Corzine, O.D.
Robert E. Dieter, O.D., J.D.
Darlene T. Fong, O.D.
Pia Hopker, O.D.
Carl H. Jacobsen, O.D.
Curtis W. Keswocik, O.D.
Jeffrey K. Ko, O.D.
George K. Lee, O.D.
A. Mika Moy, O.D.
Wesley T. Perry, O.D.
Paul H. Peng, O.D., J.D., M.A.
Timothy Sanders, O.D.
Meredith M. Whitehouse, O.D.
Christina S. Wilmer, O.D.
Barry C. Winsten, O.D.
David N. Yang, O.D.

Assistant Clinical Professors:

Richard W. Baker, O.D.
Christine W. Darr, O.D.
Karen R. Chester, O.D.
Selma L. Chin, O.D.
Jorge A. Cuadros, Ph.D., O.D.
Sarai N. Fisher, O.D., Ph.D.
Sara L. France, O.D.
Chesley M. Gan, O.D.
K. Scott Gee, O.D.
Michael A. Glazeski, O.D.
Maziar Hafezi, O.D.
Danial Harvitt, O.D., Ph.D.
Michelle J. Holt, O.D.
David C. Holcombe, O.D.
Stephen J. Ingman, O.D.
Ronald J. Isom, O.D., M.A.
Nicholas G. Kerry, O.D.
Jennifer E. Kirby, O.D.
Sala M. Lee, O.D.
Scott Lee, M.D.
Meng C. Lin, O.D., Ph.D.
Suzanna M. Lin, O.D.
Randal R. McPherran, O.D.
Andrew B. Mlick, O.D.
Glen Y. Ozawa, O.D.
Sasha Penn, O.D.
Thomas P. Robertson, M.D.
Yolanda M. Scheer, O.D.
Lee Schwartz, O.D.
Jennifer Sueno, O.D.
Todd D. Severson, M.D.
Mary Ann Shiu, O.D.
Andrew L. Sorenson, M.D.
Lillian L. Wang, O.D.
P. Harold Woodring, O.D.
Riaik Y. Wu, O.D.

Clinical Instructors:

Nicholas Chan, O.D.
Julie F. Y. Forister, O.D.
Christopher R. Geax, O.D.
Kathy D. Halverson, O.D.
Jeffrey A. Hart, O.D.
Matthew Hileman, O.D.
Heather Jonasson, O.D.
Weon Jun, O.D.
Kuneyoshi Kanai, O.D.
Zbya Kanalia, O.D.
Cindy Sakai, O.D.
Young Kim, O.D.
Garley Leon, O.D.
Nancy L. Lin, O.D.
Sandra M. Lin, O.D.
Garley Leon, O.D.
Young Kim, O.D.
Nancy L. Lin, O.D.
Sandra M. Lin, O.D.
Garley Leon, O.D.
Young Kim, O.D.

Optometry Programs

The School of Optometry provides professional training in the art and science of vision care. Drawing upon the principles of anatomy, optics, physiology, and psychology, the training professional program leads to the degree of Doctor of Optometry, which qualifies one to take national and state board examinations.

Doctors of Optometry are health care professionals. Optometry is a primary health care profession that encompasses the prevention and remediation of disorders of the vision system through examination, diagnosis, treatment, and/or management of visual efficiency, eye health, and related ocular manifestations. Graduates of the professional program are able to diagnose patients with ocular disease or systemic disorders with ocular manifestations. Recent changes in optometry laws across the United States have expanded the scope of optometric practice, giving practitioners responsibility for nonsurgical pharmaceutical treatment of eye disorders and diseases.

Doctors of Optometry are educated in the sciences of anatomy, zoology, chemistry, physics, mathematics, neurology, bacteriology, microbiology, disease processes and detection, pharmacology, behavioral science, social science, public health, and many other related fields. The school provides four years of comprehensive training in vision care aimed at training primary eye care practitioners. The first year emphasizes advanced study of sciences which form the background of optometry, such as ocular anatomy, medical physiology and biochemistry, ocular pathology, physiology, microbiology and virology, neuroanatomy, the psychology of vision, vision science, geometric optics, optical, geometric and technical and practical optics. The second and third years are devoted to the science of optometry and the acquisition of skills in examination procedures. Although clinical participation is involved in all four years, active responsibility for patient care begins in the spring preceding the third year. The fourth year is devoted to primary care practice of optometry and the detailed study of specialized areas, including contact lenses, binocular and infant vision, vision functions, ocular health, aniseikonia, vision of the elderly, and low vision.

Optometry offers a wide variety of interesting, challenging, and rewarding careers in private practice, in hospitals and other healthcare organizations, and in public service. The education acquired at the School of Optometry provides today’s Doctors of Optometry with the knowledge and skill necessary to meet the challenges of providing vision care.

For further information about the School of Optometry, please consult our web site at optometry.berkeley.edu.

Optometric Residency Program

A one year Optometric Residency program is available to Doctors of Optometry seeking advanced optometric training. Areas of clinical study include Binocular Vision, Contact Lens and Cornea, Low Vision, Ocular Disease, Pediatrics, and Primary Care.
Vision Science Graduate Program (M.S. and Ph.D. Degrees)

Chair of Vision Science: Austin Roorda, Ph.D.
Office of Administrator: 524 Minor Hall #2020, (510) 642-9804
vision.berkeley.edu

Core Members

Anthony J. Adams, O.D., Ph.D. Color vision, visual physiopharmacology, retinal physiology, adaptation, retinal computation (Biophysics)

Clay J. Radke, Ph.D. Combining principles of surface and optical science, for surgical simulation, vision realistic rendering (Computer Science)

Eugene Switzer, Ph.D. University of Santa Cruz (Chemistry)

Richard C. Van Sluyters, O.D., Ph.D. Mammalian developmental visual neurobiology (Vision Science and Optometry)

Frank Werblin, Ph.D. Electrophysiology of local circuit interactions in the nervous system (Molecular and Cell Biology)

Jai M. Ench, (Emetis, Inc.), Ph.D.

Robert B. Mandell (Emeritus), O.D., Ph.D.

Elwin Marg (Emeritus), O.D., Ph.D.

Gerald Westheimer (Emeritus), O.D., Ph.D., F.R.S.

Elwin Marg (Emeritus), O.D., Ph.D.

Robert B. Mandell (Emeritus), O.D., Ph.D.

Frank Werblin, Ph.D.

Jai M. Ench, (Emetis, Inc.), Ph.D.

The Graduate Program in Vision Science leads to the M.S. and Ph.D. degrees. The program is administered by the Group in Vision Science, representing cross-disciplinary faculty from the School of Optometry and the Departments of Psychology, Computer Science, Molecular and Cell Biology, Neuroscience, and Biocomputing, among others. The faculty is distinguished in their accomplishments and diverse in their areas of expertise. Research facilities available to graduate students in vision science are among the best in the world.

The Graduate Program in Vision Science provides training in a wide variety of topics pertaining to the eye and vision. These include the optics of the eye, retinal and cell biology of the eye, anatomy and neurophysiology of the retina and visual pathways, computational vision, clinical aspects of vision, and more. The program prepares students for academic careers in research and teaching in vision science, optometry, ophthalmology, bioengineering, physiology, psychology, and other related disciplines. It also prepares students for research careers in industrial settings in related areas.

Admission to this program requires a bachelor’s degree in a relevant discipline (such as biology, computer science, engineering, or psychology) or a doctoral degree in medicine or optometry. Computer science, engineering, or psychology) or a doctoral degree in a relevant discipline (such as biology, computer science, engineering, or psychology) or a doctoral degree in medicine or optometry. Computer science, engineering, or psychology) or a doctoral degree in medicine or optometry. Computer science, engineering, or psychology) or a doctoral degree in medicine or optometry. Computer science, engineering, or psychology) or a doctoral degree in medicine or optometry. Computer science, engineering, or psychology) or a doctoral degree in medicine or optometry.

Optometry

Lower Division Courses

C10. The Eye and Vision in a Changing Environment (2) Two hours of lecture per week. Course covers introduction to the basic functions of common sense and reducing visual disorders with major public health implications for society—e.g., myopia, cataracts, diabetic hypertensive eye disorders, developmental disorders (e.g., lazy eye), and environmentally induced diseases and disorders (solar eye burns, cataracts). Major approaches to the prevention, diagnosis, and treatment of common disorders will be addressed in terms of the biological and optical sciences underlying the treatment. Impacts on society and health care delivery will be reviewed. This course is open to students with cataract. Patient management and professional communications; legal and ethical issues; managed care and optometry. (SP)

222A. Optics of Ophthalmic Lenses. (2) Three hours of lecture and two hours of laboratory per week. Prerequisites: Vision Science 203A or 203B. Formerly 222A. Optical and physical characteristics of ophthalmic lenses, to include spherical and aspheric surfaces of single and multifocal lens designs, and ophthalmic prisms. Lens power measurement methods, lens thickness power relationships and considerations in designing prescription glasses. Characteristics of refractive materials, ophthalmic coatings, lens materials, and their role in ocular protection.

222B. Advanced Clinical Optics. (2) Two hours of lecture per week. Prerequisites: 222A. Formerly 222B. Ophthalmic lens aberrations and minimization. Ophthalmic lens designs relating to anterior segment, anterior chamber, and high refractive vision; power differences of the eye, contact lens optics, and optical principles of low vision aids. Environmental vision and related ophthalmic standards. (SP)
226A. Systemic Pharmacology. (2.5) Two hours of lecture and one hour of discussion per week. Prerequisites: Vision Science 206D. Basic pharmacology, terminology, and concepts (both pharmacodynamic and pharmacokinetic) and pharmacotherapy of medical conditions commonly encountered in clinical optometric practice (including cardiovascular disease, diabetes, infections, diabetes, infections and inflammatory conditions, as well as central nervous system disorders). (F,SP) Wildsoet

226B. Ocular Pharmacology. (2.5) Two hours of lecture and one hour of discussion per week. Prerequisites: 226A. Basic pharmacology, terminology, and concepts (both pharmacodynamic and pharmacokinetic) as applied to the eye and ophthalmic drugs, clinical prescribing issues including formulation, dosing and prescribing, and pharmacist education in the clinician’s role in drug interactions, antihypertensive, vitamins, and other “specialist” systemic drugs. (F,SP) Wildsoet

230A-230B. Graduate General Clinical Practice. (2-6;2-6) Course may be repeated for credit. Four hours of clinic per credit hour. Prerequisites: O.D. degree. General optometric practice for four hours per week per credit hour, including optometric examination, dispensing, consultation, and subsequent vision care of patients, performed independently by graduate student clinicians. (F,SP)

231A-231B. Graduate Specialty Clinics. (2-8;2-8) Course may be repeated for credit. Four hours of clinic per week per unit. Prerequisites: O.D. degree. Clinical examination of patients in designated specialty clinics. More than one clinical specialty may be taken simultaneously. (F,SP)

236A-236B. Systemic Disease and its Ocular Manifestations. (3) Two hours of lecture and two hours of discussion per week. Prerequisites: 200D. 236A is a prerequisite for 236B. The pathophysiology, pharmacotherapy, and clinical management of systemic and ocular diseases will be discussed through a combination of lecture and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease and their relative ocular manifestations will be presented. (F,SP) Harvey

240. Diagnosis and Treatment of Sensory/Motor Anomalies. (3) Two and one-half hours of lecture per week and 16 hours of laboratory per semester. Prerequisites: Vision Science 217 and 219. Formerly 140. Diagnosis and treatment of heterophoria, amblyopia, ocular motility disorders, and other sensory and motor anomalies. Assessment and management of acquired and developmental visual perceptual disorders in relationship to learning disabilities. Design and implementation of treatment programs. (SP)

241. Advanced Management and Rehabilitation of Sensory/Motor Anomalies. (3) Two and one-half hours of lecture per week and 16 hours of laboratory per semester. Prerequisites: 240. Formerly 141. Advanced diagnosis, prognosis and treatment of strabismus, neurologic ocular motility disorders, amblyopia, and other sensory and motor anomalies. Assessment and management of developmental and acquired visual perceptual disorders in relationship to learning disabilities. Design and implementation of treatment programs. (SP)

246. Diagnosis and Treatment of Anterior Segment Ocular Disease. (4) Four hours of lecture per week. Prerequisites: 236. Formerly 146. This course series consists of the pathophysiology, pharmacology, and clinical management of systemic and ocular diseases. The course series is designed to provide a foundation for advanced diagnosis and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease and their relative ocular manifestations will be presented. The basic principles of pharmacology will be followed by overview of drugs used to treat diseases of each system. The role of the optometrist in the health care system will be emphasized. (F)

251. Low Vision. (2.5) Two and one-half hours of lecture per week. Prerequisites: 200D. Formerly 151. Epidemiology and etiology of low vision. Optical principles of low vision and examination and treatment of the low vision patient. Interdisciplinary rehabilitation resources, counseling, and referral. (F)

256. Diagnosis and Treatment of Posterior Segment Ocular Disease. (4) Four hours of lecture per week. Prerequisites: 246. Formerly 156. This course series consists of the pathophysiology, pharmacotherapy, and clinical management of systemic and ocular diseases through a combination of lecture and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease and their relative ocular manifestations will be presented. The basic principles of pharmacology will be followed by overview of drugs used to treat diseases of each system. The role of the optometrist in the health care system will be emphasized. (SP)

260A. Contact Lenses: Examination Principles and Practice. (3) Two hours of lecture and two hours of laboratory per week. Formerly 160A. Examination procedures and instrumentation used in monitoring the ocular health of patients. Contact lens inspection, care, and handling. Physical and optical properties of contact lenses. Fitting contact lenses to the human eye, clinical implications. The Sarver Lecture Series. (12 hours on a Saturday and Sunday.) (SP)

270A. Eyecare Business and Professional Management I. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 200B. Formerly 140B. Ethics in general, and in an optometric practice, particularly, are presented and discussed. Debt management, goal setting, epidemiological trends and health care implications, and microeconomics as it affects the practice of optometry. (SP)

270B. Eyecare Business and Professional Management II. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 270A. Patient scheduling, patient communication, systems design and office flow, accounting and finance in an optometric setting, fee computation techniques. (F)

270C. Eyecare Business and Professional Management III. (2) Two hours of lecture/seminar per week. Prerequisites: 270A. Entrepreneurship, financing alternatives, business loans, human resources, marketing, personal finance, business law as it affects optometry. (SP)

281A-281B. Clinical Graduate Rounds. (1-3;1-3) Course may be repeated for credit. Seminar/patient demonstration. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: O.D. degree. Presentation and discussion of the diagnosis, etiology, prognosis, and treatment of selected clinical cases. (F,SP)

291A-291B. Optometry Research Project. (1-1;1-1) One hour of discussion per week. Credit and grade to be determined on completion of course. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: O.D. degree. Directed research for optometry students. Presentation of research results. (F,SP) Cohn

292A-292B. Graduate Optometry Seminar. (1-3;1-3) Course may be repeated for credit. Seminar. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: O.D. degree. Directed seminars on selected topics in clinical optometry. (F,SP)

298A-298B. Independent or Group Studies. (1-6;1-6) Course may be repeated for credit. Directed studies. Prerequisites: O.D. degree. Directed studies on a selected topic(s) within optometry. (F,SP)

299A-299B. Graduate Optometry Research. (2-4;2-4) Course may be repeated for credit. Research. Prerequisites: O.D. Degree. Directed research on a selected topic within clinical optometry. (F,SP)

Vision Science

Lower Division Courses

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to 49 weeks. Examination of patients in a primary care setting, prescribing of optometric therapy, management of emergency procedures, and vision screenings of children and adults. (F,SP)

435. Advanced Procedures in Ocular Disease Diagnosis. (2) One hour of lecture and two hours of laboratory per week. Instrumentation, techniques, and principles for examination, diagnosis, and treatment of ocular disease. Introduction to optometric informatics related to ocular disease. (F)

440B-440C. Advanced Optometry Clinic. (9.9) Two hours of seminar per week and a minimum of 22 hours of clinic per week. Prerequisites: 440A and 441A. Examination of patients in a primary care setting. Diagnosis, prognosis, treatment, patient management and follow-up. (F,SP)

441B-441C. Specialty Clinics. (7.7) Minimum of 15 to 20 hours of clinic per week. Prerequisites: 440A and 441A (offered summer session only). Examination, diagnosis, prognosis, treatment, and/or management of patients in specialty clinics; ocular disease, contact lenses, binocular vision, ophthalmic optics, and environmental and occupational vision. (F,SP)

450A-450B. Grand Rounds and Seminar. (2.3) Two hours of discussion per week. Prerequisites: 440A. Formerly 450B-450C. Presentation of clinical cases demonstrating basic and advanced optometric care, including diagnosis, treatment, and patient management. (F,SP)

452. Current Concepts in Ocular Disease. (1) One hour of seminar per week. Prerequisites: 440B and 441B. Recent advances in the diagnosis, diagnosis, and management of ocular disease. (SP)

499. Supervised Independent Study. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Independent study under control of Associate Dean for Student Affairs. (F,SP) Staff

Vision Science
198. Group Studies for Advanced Undergraduates. (1-4) Supervised group study. Must be taken on a passed/not passed basis. Prerequisites: Upper division status and consent of instructor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Conducted for credit. Must be taken on a passed/not passed basis. Prerequisites: Upper division status and consent of instructor, the student’s major adviser and the departmental chair. Supervised independent study and research. Enrollment restricted; see “Introduction to Courses and Curricula” section of this catalog. (F,SP) Staff Graduate Courses

201A-201B. Seminar in Vision Science. (2,2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Graduate seminar in vision science. (F,SP)

203A. Geometric Optics. (4) Three hours of lecture, two hours of laboratory, and one hour of discussion per week. Formerly 101. Geometrical methods applied to the optics of lenses, mirrors, and prisms. Thin lens eye models, magnification, astigmatism, prism properties of lenses, thin lenses. (F)

203B. Optical System and Physical Optics. (4) Three hours of lecture, two hours of laboratory, and one hour of discussion per week. Prerequisites: 203A. Formerly 102. Principles of optical systems, principles and clinical applications of apertures and stops, aberrations, image formation, and aberrations. Optics of the eye. Selected topics in physical optics, diffraction, interference, polarization. (SP)


206A. Anatomy and Physiology of the Eye. (2) Four hours of lecture for seven and one-half weeks. This course focuses on the anatomy and physiology of the eyeball. Overview of the gross anatomy of the eye followed by eye-relevant cellular and molecular biology. Cerebro-retinal molecular details of structure and function of each of the various non-neural components. (F) Gong, Fleiszig

206B. Anatomy and Physiology of the Eye and Visual System. (2) Twenty-six hours of lecture and eight hours of laboratory for seven and one-half weeks. Prerequisite: 206A. Formerly 106B. Structure and function of the tissues of the eye, ocular appendages, and the central visual pathways. Basic concepts of physiological, neurological, embryological, and immunological processes as they relate to the eye and vision. Foster an appreciation of the pathophysiology of various disease processes. Convey the importance of anatomy and physiology in the medical approach to oculocerebral disease processes. (F,SP)

206C. Anatomy and Physiology of the Eye and Visual System. (2) Four hours of seminar for seven and one-half weeks. Prerequisites: 206A-206B. Formerly 106C. Problem-based learning approach using clinical case examples. Continuation of 206A-206B. (F,SP)

206D. Neuroanatomy and Neurophysiology of the Eye and Visual System. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: 206A (must be taken concurrently). Formerly half of 206A. Structure and function of the neurosensory retina, photoreceptors and their intraretinal circuitry. Basic concepts of etiology and management of major retinal conditions. Overview of diagnostic techniques in retinal imaging, electrophysiologic testing and new genetic approaches to the understanding of the early visual pathway including retinal ganglion cells, optic nerves, lateral geniculate nucleus and visual cortex. Pupillary responses. Specialization in the visual cortex. (F) Flannery, Freeman

212A. Optics and Dioptrics of the Eye. (2) Three hours of lecture per week for five weeks, plus library assignments. Prerequisites: Consent of instructor. Introduction for graduate students to basic principles of classic and modern geometric optics (thin lens systems, mirrors, prisms, apertures, and stops) and their physical and physiological applications in clinical medicine and computer vision. (SP)

212B. Visual Neurophysiology and Development. (2) Three hours of lecture for nine weeks plus library assignment. Prerequisites: Consent of instructor. Introduction for graduate students. Visual pathways will be considered from retina to lateral geniculate to visual cortex. Basic organization at each stage will be covered. Primary focus will be studies of receptive field characteristics and associated visual function. Development and plasticity of the same visual pathways will also be covered. Evidence and implications will be explored from controlled rearing procedures and studies of abnormal visual exposure. (F)

212D. Anatomy and Physiological Pathology of the Eye. (2) Three hours of lecture per week for five weeks. Prerequisites: Consent of instructor. Introduction for graduate students to basic sensory aspects of light and color vision including: psychophysical methods, spectral response of the eye, mechanisms of sensitivity control, dark adaptation, color discrimination, mechanisms of normal and defective color vision. (SP)

212E. Color Vision and Visual Sensitivity. (2) Three hours of lecture per week for five weeks. Prerequisites: Consent of instructor. Introduction for graduate students to basic sensory aspects of light and color vision including: psychophysical methods, spectral response of the eye, mechanisms of sensitivity control, dark adaptation, color discrimination, mechanisms of normal and defective color vision. (SP)

212F. Spatial and Binocular Vision, Eye Movements, and Motion Perception. (2) Three hours of lecture and library assignments for five weeks. Prerequisites: Consent of instructor. Introduction for graduate students to human spatial vision including contrast sensitivity, visual acuity, and spatial localization. Introduction to eye movements, motion perception, and motor and sensory aspects of binocular vision including pursuit, vergence, and saccadic eye movements, and related neurophysiological processes. (SP)

212G. Molecular Genetics of Vertebrate Eye Development and Diseases. (2) Three hours of lecture for five weeks. Prerequisites: Graduate student in vision science or consent of instructor in charge. The primary focus of this course is to teach the molecular basis of vertebrate eye development and related disease. This course will cover some of the basic principles of molecular and cell biology, commonly used techniques and experimental approaches, as well as the biological mechanisms for vertebrate eye development and related eye diseases. Recent progress in identifying important ocular genes and the approaches used to identify them will be discussed. (SP) Gong


219. Binocular Vision and Space Perception. (2) One and one-half hours of lecture and 10 hours of laboratory per week. Prerequisites: 203B or consent of instructor. Formerly 118. Perception of space, direction, and distance. Binocular retinal correspondence, horopters, differential magnification effects and anomalies of binocular vision development. Sensory vision, local stereopsis, static and dynamic stereopsis, binocular depth cues. (SP)

230. Ethics in Scientific Research. (2) Thirty hours of seminar per semester. This seminar will examine a range of ethical issues that arise in doing science. Beginning with the philosophical and social foundations, we will consider the pathogene-sis of fraud, statistics and deception, the ethics of authorship and publication, research with human subjects, animal use, conflict of interests, and confidentiality. (SP)

262. Visual Cognitive Neuroscience. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Consent of instructor. The course will provide an overview of visual cognitive neuroscience, drawing from neuroanatomy, neurophysiology in humans and animal models, psychophysics, neuroringing, neuropharmacology, neuropsychology, and computational models of vision and cognition. Topics will include: basic anatomy and physiology of the mammalian visual system, motion perception and processing, depth perception and representation of visual space, brightness and color, object and face recognition, visual attention, and adult plasticity, perceptual learning, multisensory integration, and visual awareness. (SP) Silver


288. Group Studies, Seminars, or Group Research. (1-6) One to four hours of lecture per week. Group studies of selected topics. Advanced studies in various subjects through special seminars on topics to be identified each year. Informal group discussions on current problems, group participation in experimental problems and analysis. (F,SP)

299. Research in Vision Science. (1-12) Hours varied. Prerequisites: Consent of instructor. Research. (F,SP)

601. Individual Study for Master’s Students. (1-6) Course may be repeated for credit with consent of instructor. Two hours of lecture per week. Prerequisites: Consent of instructor. Selected topics from vision science mechanisms, specification, and discrimination, psychophysics and neurophysiology of color processing. Color and brightness perception. Stiles two-color increment threshold measures, interaction of color and form, color vision anomalies.

240. Oculomotor Functions and Neurology. (2) One and one-half hours of lecture and 10 hours of laboratory per week. Prerequisites: 203B or consent of instructor. Formerly 117. Neuro-anatomical pathways for the control of eye position and movement; gaze holding, eye movement stabilization and tracking eye move-ment systems; oculomotor signs of disorders of the central nervous system (palsies, nystagmus, opthal-moplegia, cog-wheel pursuits, saccadic dysmetria); the neuro-ocular-motor relationship, and the tonic coupling of accommodation and convergence; binocular misalignment (heterophoria and fixation dispar-ity); and presbyopia. (SP)

210. Visual System Development and Diseases. (2) Three hours of lecture for nine weeks. Prerequisites: Consent of instructor. Continuation of 206A-206B. Formerly 101. Perimetric and psychophysical tests in acuity, perimetry, and color vision. The normal visual system. Introduction for graduate students to basic sensory aspects of light and color vision including: psychophysical methods, spectral response of the eye, mechanisms of sensitivity control, dark adaptation, color discrimination, mechanisms of normal and defective color vision. (SP)
Peace and Conflict Studies / 407

Peace and Conflict Studies (College of Letters and Science)

Group Major Office: International and Area Studies, 101 Aldrich Hall, Iastg@berkeley.edu, (510) 642-4466
Chair: Jerry Sanders

Teaching Faculty
Amerigo Azevedo (Peace and Conflict Studies)
Francesca Giovannini (Peace and Conflict Studies)
Jerry W. Sanders (Peace and Conflict Studies)
Julie Shackford-Bradley (Peace and Conflict Studies)
Rachel Snigelane (Human Rights Center)
Darren Zook (International and Area Studies)

Program in Peace and Conflict Studies (PACS)

PACS introduces students to peace, conflict, and war through critical analyses of the social, economic, political, and ecological dimensions of war, violence and peace. PACS courses are drawn from a number of disciplines, and students are expected to pursue their studies from an interdisciplinary perspective. PACS majors are also encouraged to develop an integrative understanding of peace theory, research, and practice, taking advantage of internship opportunities in both local and global settings. The PACS curriculum is designed to provide students both breadth and depth in their study of peace and conflict: breadth is provided through two of six designated survey fields and depth by area of concentration. Areas of concentration may be chosen from the following subject areas: Human Security; Global Governance; Culture and Identity; Human Rights; Conflict Resolution; and Nonviolence. These courses may be combined with a specific regional focus. Students may also design an independent area of concentration in consultation with faculty and by petition to the program chair.

The Group Major

Declaring a major in peace and conflict studies follows guidelines established by the College of Letters and Science. Students wishing to declare PACS: (1) must be currently enrolled in or have completed PACS 10 with a grade of C or better; (2) must have attended a major declaration workshop; (3) must not be in their final semester of undergraduate study; and (4) are encouraged to have completed at least two semesters of college-level foreign language or the equivalent.

Students are reminded that: (1) no coursework for the major may be taken on a passed/not passed basis, and (2) no course may be used to satisfy more than one major requirement.

Double Majors. Double majors must be approved by the dean of the College of Letters and Science. No more than two upper division courses may be used to satisfy requirements in both majors.

Courses Outside L&S. No more than three courses outside the College of Letters and Science may be used to fulfill group major requirements.

Study Abroad. The use of coursework taken at institutions outside the United States to fulfill major requirements is restricted to the equivalent of three semester- or six quarter-credit division courses. Courses taken to fulfill language requirements for the group major are not included in this restriction.

Transfer Courses. A maximum of three upper division courses taken at other institutions (including those of the UC Education Abroad Program) may be used to satisfy major requirements. These courses will be accepted only as three of the required upper division courses (regardless of unit value) and must be validated by the Office of Undergraduate Admissions and approved by a major adviser. Courses used to fulfill lower division requirement or the foreign language requirement are not included in this restriction.

Honors Program. To graduate with honors from the major in peace and conflict studies, students must successfully complete IAS H102 (fall only) and PACS H195 (spring only), and must obtain GPAs of 3.6 in the major and 3.5 in overall University coursework. The honors seminar (PACS H195) is taken in addition to a student’s regular coursework for fulfilling requirements for the major and culminates in the writing of a senior thesis. The thesis is read by the PACS H195 instructor and at least one other faculty member who is selected by the student in consultation with the thesis instructor. Eligibility for participating in the Honors Program is determined in the IAS office. Note: There is no guarantee that students accepted into the honors program will graduate with honors. Honors recommendations are made after graduation and are based on a number of factors, including (but not limited to) major GPA, grades received for IAS H102 and PACS H195, and faculty adviser recommendations.

Course Plan

There is considerable flexibility within PACS for students to construct individual programs appropriate to their specific intellectual and geographic interests. Students are strongly encouraged to define their major and minor courses in consultation with their faculty adviser. The following course plan provides a general guide for the major and minimal course requirements that must be met. This structure is designed to provide all PACS students with a common knowledge base and intellectual reference points. The program is centered around PACS 10, Introduction to Peace and Conflict Studies, which provides a basic factual, theoretical and methodological grounding in peace and conflict studies. There is also a language proficiency requirement which, depending on one’s language skills, could require language courses. The upper division courses include two core courses, including a senior seminar and three survey courses, a methods course, and four concentration courses. Students may also enroll in the Honors Program (described above).

Lower Division (3 courses). PACS 10 and two courses from the following list: Anthropology 3, 3AC, 12AC; Asian Studies 10; Development Studies C10; Economics 1, 2, Geography 4, 10, C15, 20, 40, C55; History 7B, 8B, 9, 10, 11, 12, 13B, 14; International Area Studies 46; Latin American Studies 10; Political Science 2; Psychology 1; Sociology 1, 3, 3AC; Undergraduate Business Administration 10.

Foreign Language. All PACS students must be able to demonstrate proficiency in any single modern language (other than English) equivalent to four college-level semesters.

There are three ways students can fulfill the four-quarter language requirement, depending on their backgrounds and abilities:

(1) Through coursework. Any combination of high school courses, college courses, summer programs, or college-level study abroad programs could satisfy the language requirement. At a minimum, students must complete the fourth semester of a language with a grade of C- or better. The first, second, or third levels may be taken on a passed/not passed basis; the fourth semester must be taken for a letter grade. Language courses need not be taken at Berkeley; courses taken at a community college or any accredited school or university are acceptable.

(2) With a proficiency exam. Students whose language skills are at fourth semester or beyond and who do not wish to take courses can opt to test out of this requirement. However, not all of Berkeley’s language departments offer proficiency exams. See a PACS adviser about specific departmental policies.

(3) Being a non-native English speaker. Non-native English speakers who have taken college-level language courses are able to demonstrate proficiency in any single modern language (other than English) to satisfy this requirement; however, documentation of fourth semester ability is still required. Students can take a proficiency test (see above) or alternatively, provide documentation that they have been exposed to and learned the language at least through high school or the equivalent.

Upper Division.

Core (2 courses). PACS 100, Peace Theory: Approaches and Analyses, and PACS 190, Senior Seminar. These courses provide the scope of the discipline in historical, theoretical and practical terms.

Methods (1 course). The methodology requirement is designed to give each PACS major a set of analytical skills appropriate to the core focus of their individual program. The methods course can be determined from an array of options—statistical methods or research design. The selection of the most appropriate class for each student should be undertaken in close consultation with an adviser. The first category focuses on advanced statistical methods and computer-assisted data analysis. A lower division statistics course is strongly recommended as a prerequisite to any of these courses. The second category focuses on research design and field methods. It is oriented to questions of survey design, field analysis, qualitative methods, and approaches to research design. An introductory course in statistics is also recommended as a prerequisite to these courses. Lists of approved courses can be obtained from the IAS office.

Survey (2 courses). These courses provide a breadth of subject areas and the background necessary for the concentration. Students complete at least one course in each of the following six subject areas: (1) human security; (2) global governance; (3) culture and identity; (4) human rights; (5) conflict resolution; and (6) nonviolence.

Concentration (4 courses). In the concentration, students pursue an advanced study on a particular issue in peace and conflict studies. Concentrations can be self-defined or chosen from one of six designated categories: (1) human security; (2) global governance; (3) culture and identity; (4) human rights; (5) conflict resolution; and (6) nonviolence.

B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course

R prefix=course satisfies R&AC requirement
AC suffix=course satisfies American Cultures requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
The Minor

The minor in PACS consists of six upper division courses. A minimum of three must be upper division PACS courses. The third course must be selected from one (only) of the six PACS survey areas. Applications for the minor and survey course lists are available from the IAS office. Minor applications must be submitted no later than the last day of instruction of the semester immediately preceding the final semester.

Note: The following college requirements apply to the PACS minor program: (1) at least three courses must be offered at Berkeley; (2) all courses must be taken for a letter grade; (3) a minimum GPA of 2.0 must be achieved in the courses used to satisfy the minor requirements; and (4) no more than one course can satisfy requirements for both a major and a minor.

Lower Division Courses

10. Introduction to Peace and Conflict Studies. (4) Four hours of lecture and one hour of discussion per week. This course introduces students to a broad range of issues, concepts, and approaches integral to the study of peace and conflict. Subject areas include: global war prevention and departmental chair resolution and nonviolence, human rights and social justice, development and environmental sustainability. Required of all peace and conflict majors. (F,SP) Sanders

119. Special Topics in Peace and Conflict Issues. (Course may be repeated for credit as topic varies. Three hours of lecture per week. Course will focus on specific issues and perspectives in the field of peace and conflict studies. Topics will be different each term and reflect the current research of the instructor. Students will be required to do extensive reading on a weekly basis, complete assigned course projects, and complete one major research project and class presentation. Actual assignments may vary from term to term depending upon the subject. (F,SP)

125AC. War, Culture, and Society. (4) Four hours of lecture per week. This course examines the historical development of war as a framework of American culture and society. It considers the profound influence war has had in shaping the identities and life chances of succeeding generations of American men and women, from the role of race, ethnicity, and class as prisms that filter this process. This course also explores how different interpretations of democracy and nationalism have served as a catalyst for social conflict and change in racial and ethnic identity and relations, especially as reflected in war. This course satisfies the American Cultures requirement. (SP) Sanders

126. International Human Rights. (4) Three hours of lecture per week. This course provides an overview of the historical, philosophical, and political underpinnings that have shaped and continue to shape the development of human rights. Students are introduced to substantive topics within human rights and are required to research, prepare an oral presentation, and writing skills. We discuss where the concept of human rights originates, how these ideas have been memorialized in international declarations and treaties, how they develop over time, and how they are enforced and monitored. We examine a variety of issues and encourage students to think differently—analyze world and community events through a human rights framework, some of the necessary tools to investigate, research, and think critically about human rights and the roles that we may assume within this arena. The course requires two six-page papers, participation in a team debate, and an independent reading assignment. (F,SP)

127. Human Rights and Global Politics. (4) Three hours of lecture and one hour of discussion per week. Formerly 127B. After World War II, we witnessed a “revolution” in human rights theory, practice, and institutionalizations that have shaped and continue to shape the development of human rights. This course will analyze specific issues including humanitarian intervention, international criminal justice, U.S. foreign policy, immigration, and economic rights. Looking in-depth at these areas, we will explore the human rights laws, human rights, and institutions to protect human rights on how states and other global actors act, and how individuals have fared. (F,SP)

128AC. Human Rights and American Cultures. (4) Four hours of lecture per week. This course analyzes the theory and practice of human rights for three conceptualizations of human rights mean for a number of individuals and as equal and endowed with certain rights is potential. Human rights have been memorialized in international declarations and treaties, how they develop over time, and how they are enforced and monitored. We examine a variety of issues and encourage students to think differently—analyze world and community events through a human rights framework, some of the necessary tools to investigate, research, and think critically about human rights and the roles that we may assume within this arena. The course requires two six-page papers, participation in a team debate, and an independent reading assignment. (F,SP)

130. Cross-Listed Topics. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: Consent of instructor. This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to Peace and Conflict Studies majors. (F,SP)

135. Special Topics in Regional Conflict. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Topics vary from semester to semester. The course will offer a critical interdisciplinary study of geo-political regions and the sources of their conflicts. (F,SP)

149. Global Change and World Order. (3) Three hours of lecture per week. This course will analyze emerging trends, patterns, and problems associated with the phenomenon of globalization. Emphasis will be given to world economic and social integration, ethno-religious nationalism and identity politics, domestic politics, and foreign policy. Special emphasis is placed on the prospects of peace and world order in the post cold war era. (F,SP) Sanders

150. Conflict Resolution: Theory and Practice. (3) Three hours of lecture per week. This course will investigate theories of individual and group conflict as a conceptual framework for practical application. Students will learn the conflict resolution process and apply their skills and knowledge to practice and as third-party intervenors. The course will look at the sources of conflict, including multicultural aspects, and will emphasize the opportunities for growth and development in conflictive incidents. (F,SP)

151. International Conflict: Analysis and Resolution. (3) Three hours of lecture per week. This course will be concerned with the changed meaning of international conflict and the expanding mission of conflict resolution in the post cold war era, this course will study the contemporary issues of conflict and ask whether the evolution in thinking about conflict, the resolution, and their application in practice. (F,SP) Sanders

154. Multicultural Conflict Resolution. (4) Students will receive no credit for 154 after taking 154AC. Four hours of lecture per week. Prerequisites: 150 and 153, or consent of instructor. This course will investigate the special issues involved with facilitating resolution of cross/multicultural conflicts. Topics will include cultural contrasts (e.g., values, communication, and problem solving styles), mediator (facilitator/negotiator), credibility, cultural (including gender) contributions to conflict resolution and unique ethical dilemmas. Course includes field immersion, conflict resolution process exercises, and group projects. Students will receive no credit for 154 after taking 154AC. (SP) Sanders

154AC. Multi-Cultural Conflict Resolution. (4) Students will receive no credit for 154AC after taking 154. Three hours of lecture per week. Prerequisites: 150 or consent of instructor. This course will study the sources of culture and its relationship to conflict resolution? Is understanding cultural difference necessary for understanding conflict? Can mediators truly be neutral when they have their own cultural assumptions, values, and biases? What are the implicit assumptions of collaborative conflict resolution models? These questions and others will be explored in this experiential, interactive course. Students will examine how various cultural backgrounds and sociopolitical factors in this country (power, privilege, oppression, etc.) affect conflict resolution at the individual, group, and organizational level. The emphasis will be on the major racial/ethnic groups in the United States, but other dimensions of diversity, including gender, class, sexual orientation, and disability, will be discussed. This course satisfies the American Cultures requirement. (SP) Ng

157. Practicum in Peace and Conflict Studies. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: 150, 153, 154, 153, and consent of instructor. This course provides the opportunity to design, and evaluate the results of applying collaborative conflict resolution theory and models in supervised internships. Activities and materials will be designed to assist students with developing skills and understanding with a focus on ethics and culture,
159. Conflict Resolution Intensive Training. (3) Course may be repeated for credit. Fieldwork and independent meetings with faculty sponsor. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing, consent of instructor and PACS chair. Supervised experience relevant to specific aspects of peace and conflict studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

197. Field Studies. (1-4) Course may be repeated for credit. Fieldwork and independent meetings with faculty sponsor. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing, consent of instructor and PACS chair. Supervised experience relevant to specific aspects of peace and conflict studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

198. Directed Group Study for Upper Division Students. (1-3) Course may be repeated for credit as topic varies. Variable. Must be taken on a passed/not passed basis. Prerequisites: 2.0 GPA, upper division standing and consent of instructor. Supervised independent study or research on topics relevant to peace and conflict studies that are not covered in depth by other courses. Topics to be covered are initiated by students. (F,SP)

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Tutorial. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Supervised independent study or research on topics relevant to peace and conflict studies that are not covered in depth by other courses. Topics to be covered are initiated by students. (F,SP)

Philosophy (College of Letters and Science)

Department Office: 314 Moses Hall, (510) 642-2722 philosophy.berkeley.edu
Chair: R. Jay Wallace, Ph.D.

Professors
Janet Browne, Ph.D.
John Campbell, D Phil
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John R. Searle, Ph.D.
Hans Sluga, BPhil.
Barry G. Stroud, Ph.D.
R. Jay Wallace, Ph.D.
Charles S. Chihara, Ph.D.
Thompson Clarke (Emeritus), Ph.D.
Alan Code (Emeritus), Ph.D.
William Craig (Emeritus), Ph.D.
Hubert L. Dreyfus (Emeritus), Ph.D.
Benson Mates (Emeritus), Ph.D.
Wallace I. Matson (Emeritus), Ph.D.
David Rynin (Emeritus), Ph.D.
Frits Staal (Emeritus), Ph.D.
Bruce J. Vermazen (Emeritus), Ph.D.

Associate Professors
Branden Frohman, Ph.D.
John MacFarlane, Ph.D.
Shemyln Rouse, Ph.D.
Daniel Warren, Ph.D., M.D.

Assistant Professor
Nicholas Kolodny, Ph.D.

Acting Assistant Professor
Lana Buchak, Ph.D.

The Major

Lower Division. 12A, 25A and 25B.

Upper Division. 100: one of the following: 104, 105, 107, 115; and two courses from the following four groups (no more than one course from any one group):

Group A: 122
Group B: 125
Group C: 131, 132
Group D: 133, 135

A total of 48 units is required in the major program. Twenty units are required in the upper division and at least four required upper division courses. Students must take one course from the 160-178 series and one course from the 160-177 series and three additional upper division courses. Course 101 does not count towards the major.

Students should pass Philosophy 12A before the end of the junior year and should take Philosophy 100 as soon as possible after declaring the major. One of the three additional upper division courses may be taken in another department, provided that the course selected is deemed by the major advisor to be relevant to the major. One course in the major may be taken on a passed/not passed basis.

Three additional upper division philosophy courses are required.

Honors Program. With the consent of the major advisor, a student with an overall 3.5 GPA or higher and a GPA of 3.7 or higher in courses in the major may apply for admission to the honors program. This program requires completion of all of the following:

1. Philosophy H191, Senior Colloquium, or (2) a graduate seminar in the Department of Philosophy, admittance to which is contingent upon approval of the instructor in charge. It also requires that the candidate write an acceptable honors thesis, for which four units of credit will be given under Philosophy H195.

The Minor

Required: Philosophy 25A or 25B; one of the following four courses: 104, 105, 107, 115; one of the following six courses; 122, 125, 131, 132, 133, 135; three additional upper division courses in philosophy (excluding Philosophy 101). A minimum of three of the upper division courses must be taken at Berkeley. All courses taken in the minor must be completed on a letter-graded basis. Students must have an overall GPA of 2.0. All courses required for the minor. (A GPA of 2.0 must be maintained within the five upper division courses as well.)

Lower Division Courses

2. Individual Morality and Social Justice. (4) Three hours of lecture and one hour of discussion per week. Introduction to ethical and political philosophy. (F,SP) Staff

3. The Nature of Mind. (4) Three hours of lecture and one hour of discussion per week. Introduction to the philosophy of mind. Topics to be considered may include: the relation between mind and body; the structure of action; the nature of desires and beliefs; the role of the unconscious. (F,SP) Staff

4. Knowledge and Its Limits. (4) Three hours of lecture and one hour of discussion per week. Introduction to the theory of knowledge. (F,SP) Staff

5. Science and Human Understanding. (4) Three hours of lecture and one hour of discussion per week. Introduction to the philosophy of science. Staff

6. Man, God, and Society in Western Literature. (4) Three hours of lecture and one hour of discussion per week. Philosophical issues as expressed in poetry, drama, and the novel. This course will compare and contrast the Greek, Medieval, and modern worlds, as reflected in their greatest literature, with special emphasis on the role of the community in reconciling conflicts between sub-groups in society and the individual’s ability to understand and control his own life. We will also follow man’s realization that the questions and answers to these questions are themselves self-interpretations. Staff

7. Existentialism in Literature and Film. (4) Three hours of lecture and one hour of discussion per week. Existential issues as expressed in poetry, drama, and the novel. This course will compare and contrast the Greek, Medieval, and modern worlds, as reflected in their greatest literature, with special emphasis on the role of the community in reconciling conflicts between sub-groups in society and the individual’s ability to understand and control his own life. We will also follow man’s realization that the questions and answers to these questions are themselves self-interpretations. Staff

8. Traditional and Analytical Marxism. (4) Three hours of lecture and one hour of discussion per week. The development of Marxist philosophy, mainly in its European and American forms, with special attention given to some of the central themes of contemporary Marxist philosophy. (F,SP) Staff

9. American Political Thought Since 1900. (4) Three hours of lecture and one hour of discussion per week. Development and thought relevant to American politics since 1900. (F,SP) Staff

10. Western Political Thought. (4) Three hours of lecture and one hour of discussion per week. Development and thought relevant to Western political thought since antiquity. (F,SP) Staff
24. Freshman Seminar. (Course) May be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Staff

25A. Ancient Philosophy. (4) Three hours of lecture and one hour of discussion per week. The history of modern philosophy from Descartes through Kant. (SP) Staff

25B. Modern Philosophy. (4) Three hours of lecture and one hour of discussion per week. The history of modern philosophy from Descartes through Kant. (SP) Staff

26. Freshman Seminar. Course may be repeated for credit. Three hours of seminar per week. Study of various fields of philosophy of special interest to freshman. Topics will vary from semester to semester and will be individually assigned. Freshman seminars are restricted to 15 students each. Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for seven weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

Upper Division Courses

100. Philosophical Methods. (4) Two hours of lecture and two hours of discussion per week. Prerequisites: Two courses from 2, 4, 25A, 25B. Restricted to students in the major. The course is designed to acquaint students with standard modes of philosophical reasoning including detailed study of selected philosophical texts and through extensive training in philosophical writing, based on those texts. Should be taken as early as possible after declaring the major. (F,SP) Staff

104. Ethical Theories. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division courses in philosophy with special emphasis on the Pre-Socratics, Plato, and Aristotle. (F) Staff

109. Freedom and Responsibility. (4) Three hours of lecture per week. A systematic examination of freedom and responsibility. The following topics will be addressed: (1) the nature of freedom; (2) the question of freedom of will, freedom of action, and autonomy; moral responsibility and its conditions; naturalism, determinism, and its relevance for human freedom; practicality, the study of weakness and strength of will. Readings may be drawn from both historical and contemporary sources. (F,SP) Staff

110. Aesthetics. (4) Three hours of lecture per week. Prerequisites: Upper division courses in philosophy or consent of instructor. Majors in literature or the arts. Visual arts, literature, and music. Form, expression, representation style; interpretation and evaluation. Staff

114. History of Political Philosophy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: One course in philosophy. A survey of the major political philosophers, including some or all of Plato, Aristotle, Hobbes, Locke, Rousseau, Kant, Bentham, Mill, and Marx. (F,SP) Staff

115. Political Philosophy. (4) Three hours of lecture per week. Analysis of political obligation and related problems. (F) Staff

116. Special Topics in Political Philosophy. (4) Three hours of lecture per week. Prerequisites: 115 or equivalent. This course is designed to deal with a variety of topics in political philosophy. Its contents will vary from occasion to occasion. Possible topics include: (1) the problems of legitimacy theory: justice, desert, and responsibility; communitarianism, nationalism, and cosmopolitanism. Staff

122. Theory of Knowledge. (4) Three hours of lecture and one hour of discussion per week. Staff

125. Metaphysics. (4) Three hours of lecture per week. Staff

128. Philosophy of Science. (4) Three hours of lecture per week. A survey of main topics in the logic of science such as scientific theories, confirmation and nonconfirmation, scientific theories and the general heading of philosophy of science. Staff

130. Philosophy of Social Science. (4) Three hours of lecture per week. Philosophical topics arising from psychology, economics, sociology, etc. Staff

132. Philosophy of Mind. (4) Three hours of lecture per week. Mind and matter; other minds; the concept of "person." Also listed as Letters and Science C160T. (F,SP) Staff

132. Philosophy of Mind. (4) Three hours of lecture per week. Mind and matter; other minds; the concept of "person." Also listed as Letters and Science C160T. (F,SP) Staff

133. Philosophy of Language. (4) Three hours of lecture per week. (F,SP) Staff

135. Theory of Meaning. (4) Three hours of lecture per week. Prerequisites: One course in logic or consent of instructor. Language as social behavior. Language compared to other sign systems. The foundations of semantics, truth, meaning, reference. Issues of logical form in belief sentences, indirect discourse, sentences about causality, events, actions. Relations between thought and language. (F,SP) Staff

136. Philosophy of Perception. (4) Three hours of lecture per week. Prerequisites: One previous course in philosophy is recommended. The philosophy of perception is a major topic in the metaphysics of mind. (F,SP) Staff

138. Philosophy of Society. (4) Three hours of lecture and one hour of discussion per week. This course deals with the ontology of society and thus provides a foundation for the social sciences. The main questions discussed are: (1) What is the mode of existence of social reality? (2) How does it relate to psychological and physical reality? (3) What implications does social ontology have for social explanations? (F,SP) Staff

138. Philosophy of Society. (4) Three hours of lecture and one hour of discussion per week. This course deals with the ontology of society and thus provides a foundation for the social sciences. The main questions discussed are: (1) What is the mode of existence of social reality? (2) How does it relate to psychological and physical reality? (3) What implications does social ontology have for social explanations? (F,SP) Staff

140A. Intermediate Logic. (4) Three hours of lecture per week. Major concepts, results, and techniques of modern logic. Basic set theoretic tools. Model theoretic treatment of propositional and first-order logic (completeness, compactness, Lowenheim-Skolem). Philosophical implications of these results. (F,SP) Staff

140B. Intermediate Logic. (4) Three hours of lecture per week. Prerequisites: 140A or equivalent. Major concepts, results, and techniques of modern logic. Turing machines, computability theory, undecidability of first-order logic, proof theory, Godel's first and second incompleteness theorem. Philosophical implications of these results. (F,SP) Staff

141. Philosophy and Game Theory. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: At least one course in philosophy. An exploration of how game theory and rational choice theory shed light on traditional philosophical problems; and of new paradoxes and problems introduced by these theories. (F,SP) Staff

142. Psychological Logic. (4) Three hours of lecture per week. The course aims at introducing students to the basic topics in philosophy of logic. Among the topics to be treated are the notions of validity, truth and truth functionality, quantification, and necessity. (F,SP) Staff

146. Philosophy of Mathematics. (4) Three hours of lecture per week. Foundations of mathematics: logicism, intuitionism, formalism. Set theoretical paradoxes, definition of numbers, problems of continuum. Staff

148. Probability and Induction. (4) Three hours of lecture per week. Different approaches to the foundations of probability; inductive confirmation of scientific theories. Staff

149. Special Topics in Philosophy of Logic and Mathematics. (4) Three hours of lecture per week. This course is conceived as an analogue of Philosophy 129 (Special Topics in Philosophy of Science). It is supposed to allow the class to focus on more specific problems in philosophy of logic or mathematics than can be treated in a broad introductory course such as Philosophy of Mathematics (Philosophy 146) or Philosophical Logic (Philosophy 142). (F,SP) Staff

153. Chinese Philosophy. (4) Three hours of lecture and zero to one hours of discussion per week. The course focuses on certain central topics in Chinese philosophy, though a study of Chinese thought is also included. The topics emphasized vary from occasion to occasion and may include: the Confucian ethical tradition; classical Chinese philosophy; a comparative study of Confucianism, Taoism and Buddhism. (F,SP) Staff

160. Plato. (4) Three hours of lecture per week. Staff

161. Aristotle. (4) Three hours of lecture per week. Staff

167. Introduction to Chinese Philosophy. (4) Three hours of lecture per week. Formerly Oriental Languages 167. A survey of the history of Chinese philosophy from late Chou times through the Ch'ing dynasty. Taught in three different languages. Staff

410 / Philosophy
Physical Education (College of Letters and Science)

Office: 200 Hearst Gymnasium, (510) 642-3289
web.berkeley.edu
Director: M. Kathryn Scott, M.A.

Supervisor of Physical Education
M. Kathryn Scott, M.A.
Kyu Young Min (Emeritus); Med, Ph.D. (Hon.)

Lecturers
Russell Ahn, Ph.D.
Jason Britton, M.F.A.
Justin Caraway, M.A.
Sue Johannessen, M.A.
Edward Lee, Ed.D.

Sandra Li-Jue, M.F.A.
Toni Mar, M.S.
Richard Morris, M.S.
Lori Rock, B.A.
Elmar Steffke, M.A.
Dini Wong, M.A.

Diving Safety Officer
Jim Hayward, B.A.

Program Overview

The Physical Education Program is under the jurisdiction of the College of Letters and Science and reports to the college through the Dean of Biological Sciences. The program consists of a wide range of physical activity classes, as well as various lecture/laboratory courses described in the course listings. The physical activity offerings are designed to provide sequenced instruction in such classes as aquatics, combatives, dance, fitness, and sports. Instruction is planned to enable participants to develop and improve performance skills, gain knowledge and concepts relevant to the activity, receive relevant information concerning the health benefits of regular exercise, and attain an appropriate level of fitness. All activity classes are for credit and are open to women and men. Students should consult the online Schedules of Classes for specific information regarding each semester’s offerings.

Scientific Diving

The Division of Diving Safety ensures that all underwater diving conducted under the auspices of the University of California, Berkeley is done in accordance with the standards and policies established by the American Academy of Underwater Sciences and the Berkeley campus. The program is administered by the diving safety officer, in association with the Vice Chancellor for Research, Environmental Health and Safety, the Physical Education Program, the College of Natural Resources, and the Richard Gump South Pacific Biological Research Station. A University Scientific Diver Permit is required for anyone diving for scientific purposes using University equipment, diving from University-owned property, or diving as a student or employee of the University. The Diving Safety Program provides opportunities for students, faculty, and staff to pursue SCUBA certification or a Scientific Diver Permit. There are fees associated with these services. Further information can be found at pe.berkeley.edu/scubadiving.

Locker Room Regulations and Penalties

A fine is imposed if students fail to comply with the following regulations: (a) clear locker by the specified date; (b) return equipment or clothing on or before the date posted for such return at the end of each semester; (c) overnight use of locker in designated areas.

Fees

A course material fee is assessed from every student enrolled in a physical education activity class. The fees are listed by class in the online Schedule of Classes.

Lower Division Courses

1. Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Instruction in a variety of sports, exercise, and conditioning activities is offered at the elementary level. Students select section by activity and time preferred.

Program Requirements

- Course material fee is assessed from every student enrolled in a physical education activity class.
- Fees are listed by class in the online Schedule of Classes.
- Students select section by activity and time preferred.
- Program Overview: The Physical Education Program is under the jurisdiction of the College of Letters and Science and reports to the college through the Dean of Biological Sciences. The program consists of a wide range of physical activity classes and lecture/laboratory courses described in the course listings. Physical activity classes are designed to provide sequenced instruction in such classes as aquatics, combatives, dance, fitness, and sports. Instruction is planned to enable participants to develop and improve performance skills, gain knowledge and concepts relevant to the activity, receive relevant information concerning the health benefits of regular exercise, and attain an appropriate level of fitness. All activity classes are for credit and are open to women and men. Students should consult the online Schedules of Classes for specific information regarding each semester’s offerings.

- Scientific Diving: The Division of Diving Safety ensures that all underwater diving conducted under the auspices of the University of California, Berkeley is done in accordance with the standards and policies established by the American Academy of Underwater Sciences and the Berkeley campus. The program is administered by the diving safety officer, in association with the Vice Chancellor for Research, Environmental Health and Safety, the Physical Education Program, the College of Natural Resources, and the Richard Gump South Pacific Biological Research Station. A University Scientific Diver Permit is required for anyone diving for scientific purposes using University equipment, diving from University-owned property, or diving as a student or employee of the University. The Diving Safety Program provides opportunities for students, faculty, and staff to pursue SCUBA certification or a Scientific Diver Permit. There are fees associated with these services. Further information can be found at pe.berkeley.edu/scubadiving.

- Locker Room Regulations and Penalties: A fine is imposed if students fail to comply with the following regulations: (a) clear locker by the specified date; (b) return equipment or clothing on or before the date posted for such return at the end of each semester; (c) overnight use of locker in designated areas.

- Fees: A course material fee is assessed from every student enrolled in a physical education activity class. The fees are listed by class in the online Schedule of Classes.

- Lower Division Courses

- Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Instruction in a variety of sports, exercise, and conditioning activities is offered at the elementary level. Students select section by activity and time preferred.
4. Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Instruction in a variety of sports, exercise, and conditioning activities is offered at the high-intermediate level. Students select section by activity and time preferences. Students should consult the Schedule of Classes each semester to determine the particular activities available. (F,SP) Staff

5. Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Instruction in a variety of sports, exercise, and conditioning activities is offered at the intermediate level. Students select section by activity and time preferences. Students should consult the Schedule of Classes each semester to determine the particular activities available. (F,SP) Staff

11. Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Formerly 6. Variety of intercollegiate sports for men. Students should select section by activity and time preferences. Students should consult the Schedule of Classes each semester to determine the particular activities available. (F,SP) Staff

12. Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Formerly 7. Variety of intercollegiate sports for women. Students should select section by activity and time preferences. Students should consult the Schedule of Classes each semester to determine the particular activities available. (F,SP) Scott

32. Fitness for Life: Physical Adaptations to Exercise. (2) One hour of lecture and three hours of laboratory per week. Formerly 4. Physical education for all abilities. Areas associated with health and fitness, including nutrition and weight control, maintaining fitness with age, heart disease, low back care, and stress reduction are discussed. The laboratory will provide students with opportunities to assess their own fitness and health. (F,SP) Johannesssen

47A. Introduction to Skin and SCUBA Diving. (2) Two hours of lecture and two hours of laboratory per week. Prerequisites: Pass swim evaluation and medical examination for diving. This course will prepare students to explore the marine environment. Lecture topics will include: diving physics and physiology, life support equipment, the marine environment, diving safety and legal considerations, as well as the use of sports and recreation. Students will be introduced to the skills needed to maximize safety and enjoyment for recreational diving. Practice dives will be completed in both pool sessions and several actual underwater dives. Upon completion of the course, students will be able to demonstrate proper techniques in skin diving, SCUBA equipment handling, emergency response, neutral buoyancy, navigation, buddy diving, and rescues and rescue techniques. Students who successfully complete all the course requirements will receive the Basic Open Water SCUBA certificate. (F,SP) Hayward, Scott

47B. Intermediate Skin and SCUBA Diving. (2) Two hours of lecture and two hours of laboratory per week. Prerequisites: Basic SCUBA certification; pass swim evaluation and medical examination for SCUBA. This course is designed to continue the training and experiences of divers possessing a Basic Open Water certificate. Divers will be introduced to new diving environments and techniques, including night diving, nitrox diving, deeper diving, hazardous marine life, additional search and rescue techniques, etc. The weekend open water ocean dives will be conducted in Monterey and Carmel. This course will properly prepare students interested in underwater marine research and participation in PEIB C407, Introduction to Scientific Diving. Students who successfully complete all the course requirements will receive the Advanced Diver and Enriched Air Nitrox Diver certifications from the National Association of Underwater Instructors (NAUI). (F,SP) Hayward, Scott

55. Water Safety Instructor Training. (2) Two hours of lecture and two hours of laboratory per week. Prerequisites: 3 (Aquatics) or equivalent; preliminary swimming competence test. The objective of this course is to provide students with the knowledge and skills needed to teach swimming and water safety classes in accordance with standards established by the American National Red Cross. A variety of methodologies will be used to carry out this objective. These include lectures, discussions, readings, audio-visual presentations and analyses of pool teaching and practice sessions. Students will study the mechanics of various swimming strokes and life-saving techniques, learn the proper methods and progressions of teaching individuals of all ages and abilities, examine methods for evaluating and improving an individual’s performance. Upon successful completion of the course and the additional requirements of the American Red Cross, an appropriate certificate may be issued. (SP) Stetke

60. Cultural Sources of Dance, Rhythm, and Movement. (3) Two hours of lecture and two hours of laboratory per week. This course examines the many roles that dance plays in various cultures around the world. Students will explore dance with respect to folklore, religion, sociology, geography, body types, and lifestyles. Dances for birth, death, marriage, war, harvest, religion, and pleasure will be dissected, discussed, and related back to society. The course material will also bring focus to ideas pertaining to American culture and the use of the body in art and contemporary society. Bi-weekly lectures will identify how and why humans dance, and what rhythm and movement are and how they are used in culture. In conjunction with lectures will be a two-hour laboratory where students will personally experience movement styles, rhythms, and sounds of the world. No prior dance experience needed. (SP) Li-Jue

64. Cultural, Historical, Philosophical, and Social Impact of Martial Arts. (2) Two hours of lecture per week. This course is designed for students to learn historical and cultural contexts in which various martial arts have emerged; how they have been influenced by historical, philosophical, cultural, social, political, and educational developments; what functions they once served and how and why these are developed and how to be able to use this information in bettering their own lives. (SP) Ahn, Min

98. Supervised Group Study. (1-4) Course may be repeated for credit. One to four hours of directed group study per week. Prerequisites: must have 60 units and consent of instructor. Supervised studies by upper division students. Enrollment is restricted by regulations listed in this catalog. (F,SP) Staff

165. Introduction to the Biomechanical Analysis of Human Movement. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 9 and Integrative Biology 131 and 131L. Basic biomechanical and anatomical concepts of human movement and their application to fundamental movement patterns, exercise, and sport skills. (F) Scott

C165. Introduction to the Biomechanical Analysis of Human Movement. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 9 and Integrative Biology 131 and 131L. Basic biomechanical and anatomical concepts of human movement and their application to fundamental movement patterns, exercise, and sport skills. Also listed as Integrative Biology C125. (SP) Johannessen

167. Field Study in Physical Education. (1-3) Course may be repeated for credit. Individual conferences to be arranged. Must be taken on a passed/not passed basis. Supervised experience relevant to specific aspect(s) of physical education. Regular individual meetings with faculty sponsor and written reports required. (F,SP) Staff

198. Supervised Group Study. (1-4) Course may be repeated for credit. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Must have 60 units and consent of instructor. Supervised studies by upper division students. Enrollment is restricted by regulations listed in this catalog. (F,SP) Staff

Professional Courses

C407. Introduction to Scientific Diving. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Advanced scuba certification, swim test, medical exam, and consent of instructor. Diving physics, physiology, medicine, rescue, decompression, theory, navigation, environment, marine life, research methods, equipment, and University regulations. Course leads to University certification to use underwater life support apparatus for study or research under University auspices. Also listed as Integrative Biology C407. (SP) Staff

Physical Science (College of Letters and Science)

Department Office: 366 LeConte Hall, (510) 642-7166 ls.berkeley.edu/physs

Major Advising: 368 LeConte Hall, (510) 642-0481

Field Major in Physical Sciences

This program has been developed for students who wish to concentrate on the physical sciences on a broader basis than is possible in a departmental major. Two plans are offered within the major. Plan A is based on Physics 8, which is required of life sciences students, and Mathematics 16, which is required in part by life sciences departments. Through this plan, a student preparing for a career in environmental or ocean science can major in physical science and at the same time acquire the necessary pre-professional preparation. For example, Plan A, together with organic chemistry and a year of biology, will meet the entrance requirements of marine biology and field schools. Plan B is based on Physics 7 and Mathematics 1, which are required by physical science and engineering departments. Within this plan, it is possible
to complete much of the departmental major in, for example, physics or chemistry, while also studying astronomy and geology as well as computer science. For more information about the major and department, go to physics.berkeley.edu.

Plan A
(Broad introduction to physical science)

Lower Division Courses. Mathematics 16A-16B, 55; Physics 8A-8B; Chemistry 1A-1B; Computer Science 3.

Upper Division Courses. Physics 132; two of the following courses: Chemistry 100, 130B, 143, 147, 148, 149, 150; Vision Science 203A (formerly Vision Science 101); Statistics 131A. Electives in physical sciences, mathematics and statistics and the approval of the adviser to complete a total of 30 upper-division units in the major. Up to 8 upper-division units in engineering and/or computer science will be accepted with the approval of the major adviser.

Plan B
(Option of departmental concentration)

Lower Division Courses. Mathematics 1A-1B, 53, 54; Physics 7A-7B-7C; Chemistry 1A-1B or 4A-4B.

Additional Required Courses. One of the following: EPS 50 or 100A; Astronomy 7A, 7B, C162.

Upper Division Courses. Two of the three courses Physics 105, 110A, or 137A, Chemistry 120A or (for students well-enough prepared) 104A. Electives in physical sciences, mathematics, and statistics with the approval of the adviser to complete a total of 24 upper division units. Up to 8 upper division units in engineering and/or computer science will be accepted with approval of the major adviser.

Honors Program. Students with a GPA both overall and in the major of at least 3.3 may wish to participate in an honors program leading to graduation with honors. The honors program will include two semesters of work in a departmental honors program with a senior thesis.

Physicis (College of Letters and Science)
Department Office: 366 LeConte Hall, (510) 642-7166 physics.berkeley.edu
Chair: Frances Hellman, Ph.D.

University Professors

Marvin L. Cohen, Ph.D. University of Chicago. Theoretical high energy physics

Professors

Jonathan Arens, Ph.D. Harvard University. Astrophysics and plasma physics (Astronomy)
Robert J. Birgeneau, Ph.D. Yale University. Experimental condensed matter, solid state physics
Dmitry Budker, Ph.D. University of California, Berkeley. Elementary particle physics
Carlos Bustamante, Ph.D. University of California, Berkeley. Condensed matter physics
Steven Chu, Ph.D. University of California, Berkeley. Atomic, polymer, and biophysics and molecular and cell biology
John Clarke, Ph.D. University of Cambridge. Experimental condensed matter physics
Michael Crommie, Ph.D. University of California, Berkeley. Experimental condensed-matter physics
Marc Davis, Ph.D. Princeton University. Astrophysics
Robert Dynes, Ph.D. McMaster University. Experimental atomic physics
Joel Fajans, Ph.D. Massachusetts Institute of Technology. Experimental plasma physics
W. Ralph Fain, Ph.D. Stanford University. Quantum electronics and atomic physics
Stuart Freedman, Ph.D. University of California, Berkeley. Nuclear physics
Mary K. Gillard, Ph.D. University of Paris. Theory of Elementary particles
Reinhard Genzel, Ph.D. University of Bonn. Experimental astrophysics
Donald A. Glaser, Ph.D. California Institute of Technology. Psychophysics and theoretical neuroscience

Associate Professors

Matthew B. Haldeman, Ph.D. University of California, Berkeley. Experimental condensed matter physics
Kevin R. Johnson, Ph.D. Stanford University. Experimental elementary particle physics
Jonathan Kelner, Ph.D. Stanford University. Theoretical and computational condensed-matter physics
Brian Koo, Ph.D. University of California, Berkeley. Experimental and high energy physics
Nicholas Laubinger, Ph.D. California Institute of Technology. Experimental plasma science
Steven L. Lander, Ph.D. University of California, Berkeley. Experimental atomic and experimental neuroscience
Joseph M. Lattimer, Ph.D. University of Illinois at Urbana-Champaign. Theoretical condensed matter physics
Alexander Pines, Ph.D. University of California, Berkeley. Condensed matter physics
Robert R. Rimmer, Ph.D. University of California, Berkeley. Experimental elementary particle physics

Assistant Professors

Luca Bartaglia, University of Helsinki, Finland. Experimental accelerator particle physics
Michael DeWeese, Ph.D. Columbia University. Theoretical and experimental neuroscience
Hitam Murayama, Ph.D. University of Tokyo. Theory of elementary particles
Jan T. Liphardt, Ph.D. University of Cambridge. Theoretical condensed-matter physics
Holger Mueller, Ph.D. Humboldt University. Atomic physics
Ivan Srdac, Ph.D. Yale University. Experimental condensed-matter physics

Kam-Biu Luk, Ph.D. Rutgers University. Experimental high-energy physics
Carlos Bustamante, Ph.D. University of California, Berkeley. Biophysics, physical chemistry
Korkut Bardakci, Ph.D. University of California, Berkeley. Theoretical condensed-matter physics
M. Caffarel, Ph.D. University of California, Berkeley. Condensed-matter and quantum physics
William Holzapfel, Ph.D. University of California, Berkeley. Experimental high energy physics
Christian Jacobs, Ph.D. University of California, Berkeley. Theoretical astrophysics
Forest S. Mazer, Ph.D. California Institute of Technology. Space-physics
Robert P. Muller, Ph.D. University of California, Berkeley. Experimental physics, astrophysics
Hitoshi Murayama, Ph.D. University of Tokyo. Theory of elementary particles
Joseph W. Orenstein, Ph.D. Massachusetts Institute of Technology. Condensed matter
Sayaj Pimentel, Ph.D. University of California, Berkeley. Cosmology and experimental astrophysics
*Buford Prato, D. New Jersey, D.S.C. Particle astrophysics and relativistic nuclear physics
Zhong Gui, Ph.D. Cornell University. Experimental condensed-matter physics
Ran Moorthy, Ph.D. University of California, Berkeley. Experimental condensed-matter physics and materials science
Paul L. Richard, Ph.D. University of California, Berkeley. Condensed-matter physics and nonlinear optics
Andrew L. Siegel, Ph.D. Stanford University. Elementary particle physics
George Simin, Ph.D. University of California, Berkeley. Experimental high-energy astrophysics
Martin White, Ph.D. University of California, Berkeley. Theoretical condensed-matter physics
Jonathan S. Wurtele, Ph.D. University of California, Los Angeles. Condensed-matter physics
Bruno Zummo, Ph.D. University of Rome. Theory of elementary particles

The Major

The physics major is designed to give the student a broad and thorough understanding of the fundamentals of physics. The emphasis is, therefore, on this general understanding rather than on specialization. Courses among the options open to the student. Those considering a physics major are urged to consult a departmental adviser early, in order to discuss the content of the major and also the opportunities after graduation. Recent graduates have entered graduate work in a number of scientific fields, and others have gone on to jobs in academic, industrial, and government laboratories. For information about the major and department, go to physics.berkeley.edu.

Lower Division Courses. Physics 7A-7B-7C (regular or honors, although honors is recommended for students with suitable preparation). Mathe matics 1A-1B-1C-1D. Those who have not taken a substantial chemistry course in high school are urged to take a one-year sequence. Those not familiar with a computer programming language are urged to include an introductory course in computer science.

Upper Division Courses. Courses 7A-7B-7C (regular or honors) and differential and integral calculus are prerequisite to all upper division courses except Physics 132. Upper division courses may have scheduled one additional hour to the three hours of lecture. See the online Schedule of Classes, Physics 105: 110A; 137A-137B, 6 units of 137. One additional course from the following list chosen with the approval of the major adviser: 110B, 129, 130, 139, 141A-141B, 142, 151, 161 (cross listed with astronomy), 171, 191. These options will give the student an extended introduction to some areas of current research. Physics 110B is strongly recommended for students who plan to continue to graduate school.

Special programs may be worked out in consultation with the department. The prerequisites for the physics major program are usually required for admission to graduate school. Additional mathematics from among the courses Mathematics 104, 121A-121B, 185 is recommended. Competence in the use of computers is desirable.

Honors Program. Students with an overall grade-point average of 3.3 or higher in courses in the major may be admitted to the honors program. A major adviser should be consulted before the student's last year of study. This program requires completion of the major, at least one semester of Physics H190 and a senior thesis, H195A-H195B.
Biophysics. Students who wish to obtain a broad introduction to the physical sciences and their application to biology are referred to the Department of Physics and the Department of Molecular and Cell Biology. There is no biophysics undergraduate degree major program.

Engineering Physics. The College of Engineering, with the cooperation of the Department of Physics, offers a curriculum in engineering physics leading to the degree of Bachelor of Science. (The Engineering Physics major is open only to students registered in the College of Engineering.)

Field Major in Physical Science. Students interested in this major should see the “Physical Science” section of this catalog for a description of the major program.

The Minor

The Department of Physics has adopted a physics minor program. Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. The minor will conform to the College of Letters and Science specification programs and will consist of the following coursework:

- **Prerequisites.** Physics 7A, 7B, 7C (or their equivalent); Math 1A, 1B, 53, 54, (or their equivalent). These courses must be taken for a letter grade. Students must each be passed with a letter grade of C or better. The students must achieve a minimum GPA of 2.0 in the seven courses.

- **Minor Requirements.** Physics 137A; Physics 110A or Physics 105. Three additional upper division physics courses to total at least 9 units for an upper division physics unit total of at least 17 units. The following upper division courses will not count for the minor program: Physics 100, 132, H190, H185A-H185B, 198, or 199. All upper division physics courses must be taken for a letter grade. A minimum of three upper division courses must be completed at Berkeley. An overall minimum GPA of 2.0 is required in upper division courses applied to the minor program.

Students who have completed the requirements for the minor will be required to furnish transcripts (official or unofficial) to the undergraduate adviser (in 368 Le Conte Hall) to show their work and grade-point average in physics and math. After completing a confirmation of minor program petition (available in 368 Le Conte Hall) the students will be directed to a faculty major adviser who will approve the completion of the minor program.

Students may petition for a minor in physics from their time that the requirements are complete until the student graduates from the College of Letters and Science. For more information regarding this program, please contact the undergraduate student affairs officer in 368 Le Conte Hall.

Graduate Programs

Graduate work leading to the M.A. and Ph.D. degrees is offered in the Department of Physics with emphasis placed on the Ph.D. Note: The department will not consider applications from students who intend to work toward the M.A. degree only. In addition to applications and transcripts of undergraduate work, applicants for admission must submit scores of the General and Graduate Record Examination tests, and, if applicable, the TOEFL. For detailed information concerning the preliminary exam, including admissions, go to physics.berkeley.edu (click on “Graduate”), or consult Physics Graduate Student Services at (510) 642-0596.

Research is a major part of the Ph.D. program, and the department offers opportunities in a wide variety of experimental and theoretical fields. Research in the following specialties: Condensed matter and spectroscopy, astrophysics, biophysics, cosmic rays, mass spectroscopy, nonlinear optics, condensed matter physics, and statistical mechanics. The Lawrence Berkeley National Laboratory offers extensive opportunities for research in astrophysics, elementary particle and nuclear physics, condensed matter physics and materials science, and plasma and nuclear physics. Space physics, interplanetary and interstellar physics, radiation in the upper atmosphere, and cosmological problems are pursued both in the Physics Department and at the Space Sciences Laboratory.

Course requirements for the Ph.D. include the following courses: Physics 209 (Classical Electromagnetism), 211 (Equilibrium Statistical Physics) and 221A-221B (Quantum Mechanics) plus 19 units (five semester courses) approved upper division or graduate elective courses (excluding any upper division courses required for the undergraduate major)—at least 11 units must be in the 200 series courses. Some of the 19 elective units could include courses in mathematics, biophysics, or astrobiology. Consult department postings for elective recommendations. Physics 251, 290, 295, 299, 300, and 602 are excluded from the 19 elective units. Physics 251, 290, 295, 299, 300, and 602 must be completed for letter grades (averaging at least a B). No more than one-third of the 19 elective units may be fulfilled by courses graded satisfactory, and then only with approval from the department.

The master's degree is administered according to regulations given in the “Graduate Division” section of this catalog. The Department of Physics requires a comprehensive examination rather than a thesis; passing the preliminary exam is passing the comprehensive exam. The candidate must complete 35 semester units of upper division and graduate work in physics (or related fields) with an average grade of at least a B. Eighteen of these units must represent graduate physics courses.

Neither upper division courses included in the departmental (graduate) major requirements nor Physics 251, 290, 295, 299, 300, or 602 may be used to satisfy the 35-unit requirement. No more than 5 units of the master’s program may be fulfilled by courses graded satisfactorily, and then only if approved by the department. M.A. petitions are due the fifth week of fall and spring semesters.

- **Lower Division Courses**

  Courses 7A-7B-7C or H7A-H7B-H7C are fundamental and are designed to be needed by the students majoring in any of the physical sciences or who are enrolled in the College of Chemistry or the College of Engineering. Students proceeding with a second-year mathematics sequence should take courses 35A-35C concurrently with Physics 7B-7C, respectively. Physics 8A-8B is designed for premedical students, students in architecture, and students in the biological sciences.

  Physics 10 is recommended for the non-science major who wishes to gain some understanding of the basic principles of physics.

  In addition to these courses, fulfillment of, in part, the Natural Science requirements of the College of Letters and Science.

- **7A. Physics for Scientists and Engineers.** (4) Three hours of lecture and four hours of laboratory/workshop per week. Prerequisites: High school physics; Math 1A or 1AS. (Course may be repeated concurrently). Mechanics and wave motion. (F,SP) Staff

- **7B. Physics for Scientists and Engineers.** (4) Three hours of lecture and four hours of laboratory/workshop per week. Prerequisites: 7A. Math 1A-1B, Math 53 (may be taken concurrently). Heat, electricity, and magnetism. (F,SP) Staff

- **7C. Physics for Scientists and Engineers.** (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 7A-7B, Math 1A-1B, Math 53, 54 (Math 54 may be taken concurrently). Electromagnetic waves, optics, relativity, and quantum physics. (F,SP) Staff

H7A-H7C. Physics for Scientists and Engineers. (4:4:4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prereq: biology or chief school physics; Math 1A-1B or 1BS (may be taken concurrently); Math 53, Math 54. Honors sequence corresponding to 7A-7B-7C but with a greater emphasis on theory as opposed to problem solving. Recommended for the student who has not had advanced physics on the high school level and who are intending to declare a major in physics. Entrance into H7A is decided on the basis of performance on an examination given in the first week of class or the consent of the instructor, and into H7B- H7C on performance in previous courses in a standard sequence. (F,SP) Staff

1A. Introductory Physics. (4) Students with credit for 7A will not receive credit for 8A. Three hours of lecture and four hours of discussion/ laboratory per week. Prerequisites: Mathematics 16A or equivalent or consent of instructor. Introduction to forces, kinematics, equilibria, fluids, waves, and heat. This course presents concepts and methodologies for understanding physical phenomena, and is particularly useful preparation for upper division study in biology and architecture. (F,SP) Staff

1B. Introductory Physics. (4) Students with credit for 7C will not receive credit for 8B. Three hours of lecture and four hours of discussion/laboratory section per week. Prerequisites: 8A or equivalent. Introduction to electricity, magnetism, electromagnetic waves, optics, and modern physics. The course presents concepts and methodologies for understanding physical phenomena, and is particularly useful preparation for upper division study in biology and architecture. (F,SP) Staff

12. Descriptive Introduction to Physics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Open to students with or without high school physics. The most interesting and important topics in physics, stressing conceptual understanding rather than math, with applications to current events. Topics covered may vary and may include energy and conservation, radioactivity, nuclear physics, the Theory of Relativity, lasers, explosions, earthquakes, superconductors, and quantum physics. (F,SP) Muller, Staff

13. Descriptive Introduction to Physics. (3) Students will receive no credit for 10 after taking 11. Three hours of lecture and one hour of discussion per week. Prerequisites: Open to students with or without high school physics. The most interesting and important topics in physics, stressing conceptual understanding rather than math, with applications to current events. Topics covered may vary and may include energy and conservation, radioactivity, nuclear physics, the Theory of Relativity, lasers, explosions, earthquakes, superconductors, and quantum physics. Also listed as Letters and Science C707V. (F,SP) Muller, Staff

21. Physics and Music. (2) Two hours of lecture and one hour of discussion per week. Prerequisites: Open to students with or without high school physics. What can we learn about the nature of reality and the ways that we humans have invented to discover how the world works? An exploration of these questions through the physical principles encountered in the study of music. The applicable laws of mechanics, fundamentals of sound, harmonic content, principles of sound production in music, musical scales. Numerous illustrative lecture demonstrations will be given. Only the basics of high school algebra and geometry will be used. Also listed as Letters and Science C707W. (SP) Staff

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade
basis. Sections 3-4 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP) Staff

39. Lower Division Physics Seminar. (1-5) Course may be repeated for credit. One and one-half to four hours of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Enrollment by consent of instructor. THIS COURSE WILL MEET DURING THE WEEK OF PRE-ENROLLMENT. Consult bulletin boards outside 366 Le Conte for more information. Enrollment limited to 20 students per section. Physics seminars course designed for both non-major students and students considering a major in physics. Topics vary from semester to semester. (F,SP) Staff

40. Supplementary Work in Lower Division Physics. (1-3) Course may be repeated for credit. Meetings to be arranged. Students with partial credit in lower division physics courses may, with consent of instructor, complete the credit under this heading. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar and one hour of disk usage per week for ten weeks. Two hours of seminar per week for eight weeks. Three hours of seminar per week for five weeks. Prerequisites: Sophomore standing. Sophomore seminars course offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) Staff

98. Directed Group Study. (1-4) Course may be repeated for credit as topic varies. Enrollment is restricted; see the “Introduction to Courses and Curriculum” section of this catalog. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores only; consent of instructor. (F,SP) Staff

99. Supervised Independent Study. (1-4) Course may be repeated for credit as topic varies. Enrollment is restricted; see the “Introduction to Courses and Curriculum” section of this catalog. One to four hours of independent study per week. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores only; consent of instructor. (F,SP) Staff

Upper Division Courses

100. Communicating Physics and Physical Science. (2) Two hours of lecture/lab work per week. For undergraduate and graduate students interested in improving their ability to communicate scientific knowledge by teaching science in K-12 schools. The course will combine instruction in inquiry-based science teaching methods and learning pedagogy with 10 weeks of supervised teaching experience in a local school. Students will practice, with support and mentoring, communicating scientific knowledge through presentations and hands-on activities. Approximately three hours per week, including time spent in school classrooms. (SP) Staff

105. Analytic Mechanics. (4) Three hours of lecture and one hour of discussion per week. Newtonian mechanics, motion of a particle in one, two, and three dimensions, Lagrange’s equations, Hamilton’s equations, analytic techniques used in problem solving, moving coordinate systems, mechanics of continuous media, oscillations, normal modes, rigid body dynamics, tensor analysis techniques. (F,SP) Staff

110A-110B. Electromagnetism and Optics. (4,4) Three hours of lecture and one hour of discussion per week. A course emphasizing electromagnetic theory and applications; charges and currents; electric and magnetic fields; dielectric, conducting, and magnetic media; relativity, Maxwell equations. Wave propagation in media, radiation and scattering, Fourier optics, interference and diffraction, ray optics and applications. (F,SP) Staff

111. Modern Physics and Advanced Electrical Laboratory. (1-3) Course may be repeated for a maximum of 9 units. Six units required for physics major; nine units may be taken for credit. No more than 3 units can be taken in the same laboratory per week. Prerequisites: 137A or consent of instructor. The first semester (3 units), on Basic Semiconductor Circuits (BSC), covers introductory analog and digital operational amplifiers for two 4-hour afternoon lab sessions, and a one and one-half hour weekly lecture. In the second semester, Advanced Lab (3 units), students complete four of 20-advanced experimental topics. (F,SP) Staff

112. Introduction to Statistical and Thermal Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A, 137B (may be taken concurrently), or consent of instructor. Formerly 125A. Tools of particle and nuclear physics and quantum mechanics. Applications of quantum mechanics to the construction of models of subatomic particles including the quark-gluon constituents of hadrons. High energy phenomena analyzed by quantum mechanical methods. Course will survey the field including some nuclear physics. (F) Staff

129. Particle Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A, 137B or consent of instructor. Formerly 125A. Tools of particle and nuclear physics and quantum mechanics. Applications of quantum mechanics to the construction of models of subatomic particles including the quark-gluon constituents of hadrons. High energy phenomena analyzed by quantum mechanical methods. Course will survey the field including some nuclear physics. (F) Staff

130. Quantum and Nonlinear Optics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 110A and 137A-137B, or consent of instructor. Detailed theory and experimental basis of quantum and nonlinear optics, exhibiting concepts of quantum mechanical measurement, noise, stochastic processes and dissipative quantum systems. Topics include: second-quantization of electromagnetic fields, photodetection, coherence, atomic and nuclear magnetic resonance, cavity quantum electrodynamics, nonlinear optical systems, squeezed light, aspects of quantum information science, and contemporary research. (F,SP) Staff

132. Contemporary Physics. (3) Not open for credit to students who have completed 110A and 137A-137B. Three hours of lecture and one hour of discussion per week. Prerequisites: 88A-B or equivalent or consent of instructor. A general descriptive course of selected topics in contemporary physics. Subject matter varies, but may include topics from special and general relativity, atomic and nuclear physics, radiation, fundamental particles and their symmetries, superconductivity and superfluidity, solid state physics, astrophysics, and cosmology. (SP) Staff

137A-137B. Quantum Mechanics. (4,4) Three hours of lecture and one hour of discussion per week. Introduction to the methods of quantum mechanics with applications to atomic, molecular, solid state, nuclear and elementary particle physics. Detailed discussion of the structure of atoms and nuclei. (SP) Staff

138. Modern Atomic Physics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A-137B. This course covers atomic, molecular, and optical physics as a quantitative description of atoms and fields, a generalized toolbox for constructing quantum systems, and a versatile research area. Topics covered include: atomic structure and spectra, atom-field interactions, topics in quantum electrodynamics, methods of resonant manipulation of quantum systems, quantum optics, and experimental techniques. (F,SP) Staff

139. Special Relativity and General Relativity. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 105, 110A or consent of instructor. Historical and experimental foundations of Einstein’s special theory of relativity; spatial and temporal measurements, particle dynamics, electrodynamics, Lorentz invariants. Introduction to general relativity. Historical and experimental foundations of Einstein’s general theory of relativity; the metric, gravitational field equations, advanced experiments. These include many in atomic, optical systems, squeezed light, aspects of quantum mechanics, and dielectric properties of solids; energy bands and magnetic semi-conductivity; superfluidity, solid state physics, astrophysics, and cosmology. (SP) Staff

141A-141B. Solid State Physics. (4,3) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A-137B; 137B may be taken concurrently. A thorough introductory course in modern solid state physics. Crystal structure; description of solids and their bonding; electromagnetic, elastic, and particle waves in periodic lattices; thermal magnetic and dielectric properties of solids; energy bands and magnetic semi-conductivity; superfluidity, solid state physics, astrophysics, and cosmology. (SP) Staff

142. Introduction to Plasma Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 105; 110A-110B (110B may be taken concurrently). Motion of charged particles in electric and magnetic fields, dynamics of fully ionized plasma from both microscopic and macroscopic point of view, magnetohydrodynamics, small amplitude waves; exotic examples from astrophysics of stars and sciences and controlled-fusion research. (SP) Staff

151. Elective Physics: Special Topics. (3) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. Prerequisites: Staff Consent of Instructor. Topics vary from semester to semester. The level and scope of the course are such that it is acceptable as the required elective course in the physics major. See Department of Physics course announcements. (SP) Staff

C161. Relativistic Astrophysics and Cosmology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 110A-110B and 112 (may be taken concurrently). Formerly C160B and Astronomy C160B. Elements of general relativity. Physics of pulsars, cosmic rays, black holes. The cosmological distance scale, elementary cosmological models, properties of galaxies and quasars. The mass density and age of the Universe. Evidence for matter and dark energy and concepts of the early Universe and of galaxy formation. Reflections on astrophysics as a probe of the extrema of physics. Also listed as Astronomy C161, (SP) Arons, Boggs, Davis, Holzapfel, A. Lee, Ma, Quataert

177. Principles of Molecular Biophysics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 112 or consent of instructor. We will review the structure of proteins, nucleic acids, carbohydrates, lipids and other polypeptides maintaining their structure in solution. We will describe the thermodynamics and kinetics of protein folding. The principles of polymer chain statistics and of helix-coil transitions in biopolymers will be considered together with biopolymer dynamics. We will then cover the main structural methods in biology: X-ray crystallography, MNR and fluorescence spectroscopy, electron and probe microscopy, and single molecular methods. (SP) Bustamante

H190. Physics Honors Course. (2) Course may be repeated for credit. Must be taken on a passed/not passed basis. A seminar which includes study and reports on current theoretical and experimental problems in physics. Open to all students. (F,SP) Staff

C191. Quantum Information Science and Technology. (3) Three hours of lecture/discussion per week. Prerequisites: Mathematics 54, Physics 7A-7B, and either Physics 7C, Mathematics 55, or Computer Science 170. This multidisciplinary course provides an introduction to fundamental conceptual aspects of quantum mechanics from a computational and informational theoretic perspective, as well as physical implementations and technological applications of information science and quantum algorithms, complexity, and cryptography will be
touched upon, as well as pertinent physical realizations from nanoscale science and engineering. Also listed as Chemistry C191 and Computer Science C191. (F,S) Crompton, Vazirani, Whaley

H195A-H195B. Senior Honors Thesis Research. (2-2) Credit and no fee. Enrollment restricted on completion of sequence. Prerequisites: Open only to students in the honors program. Thesis work under the supervision of a faculty member. To obtain credit the student must, at the end of the term, have a thesis on file and a satisfactory grade. A total of 4 units must be taken. The units may be distributed between one or two semesters in any way. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Enrollment restrictions apply; see the “Introduction to Courses and Curricula” section in this catalog. (F,SP) Staff

199. Supervised Independent Study. (1-3) Must be taken on a passed/not passed basis. Enrollment restrictions apply; see the “Introduction to Courses and Curricula” section in this catalog. (F,SP) Staff

Graduate Courses

C201. Introduction to Nanoscience and Engineering. (3) Three hours of lecture per week. Prerequisites: Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor. This course is mandatory introduction to the fundamental topics of Nanoscience and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes: quantum chemistry, chemical physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course with the NSE Designated Emphasis core requirement. Also listed as Bioengineering C280, Materials Science and Engineering C261, and Nano Science and Engineering C201. (F,SP) Gronsky, S.W. Lee, H. Wu

C203. Computational Nanoscience. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing or consent of instructor. A multidisciplinary overview of computational nanoscience for both theorists and experimentalists. This course teaches: the main ideas behind different simulation methods; how to decompose a problem into “simulatable” constituents; how to simulate the same thing by knowing what you are doing and why thinking is still important; the importance of talking to experimentalists; what to do with your data and how to judge its validity; why multiscale modeling is both important and nontrivial. Also listed as Nanoscience and Engineering C242. (F,SP) Grossman

205A. Advanced Dynamics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 105 or equivalent. Lagrange and Hamiltonian dynamics, variational methods, symmetry, kinematics and dynamics of rotation, canonical variables and transformations, perturbation theory, nonlinear dynamics, KAM theory. (F)

205B. Advanced Dynamics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 205A. Continuous systems, dissipative systems. Attractors. Emphasis on recent developments, including turbulence. (SP)

209. Classical Electromagnetism. (5) Three hours of lecture and one hour of discussion per week. Prerequisites: 110A-110B or consent of instructor. Maxwell’s equations, gauge transformations and tensors. Complete development of special relativity, with applications. Plane waves in material media, polarization, Fresnel equations, attenuation, and dispersion. Wave equation with sources, retarded solution for potentials, and fields. Cartesian and spherical multipole expansions, vector spherical harmonics, examples of radiating systems, diffraction, and optical theorem. Fields of charges in arbitrary motion, radiated power, relativistic (synchrotron) radiation, and radiation in collisions. (F)

211. Equilibrium Statistical Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 112 or equivalent. Foundations of statistical physics, equilibrium and statistical nature of systems. Systems of interacting particles. (F)


216. Special Topics in Many-Body Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 221A-221B or equivalent recommended. Quantum many-body systems. Applications of theory and technique to physical systems. Pairing phenomena, superfluidity, equation of state, critical phenomena, phase transitions, nuclear matter. (SP)

221A. Quantum Mechanics. (5) Three hours of lecture and one hour of discussion per week. Prerequisites: 117A-117B or equivalent. Basic assumptions of quantum mechanics; quantum theory of measurement; matrix mechanics; Schroedinger theory; symmetry and invariance; angular momentum; stationary state problems; variational principles; time independent perturbation theory; time dependent perturbation theory; theory of scattering. (F)

221B. Quantum Mechanics. (5) Three hours of lecture and one hour of discussion per week. Prerequisites: 221A. Many-body methods, radiation field quantization, relativistic quantum mechanics, applications. (SP)

226. Particle Physics Phenomenology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 221A-221B or equivalent or consent of instructor. Introduction to particle physics phenomenology. Emphasis is placed on experimental tests of particle physics models. Topics include: Quark model, spectroscopy; weak decays; overview of detectors and accelerators; e-e annihilation; parton model; electron-proton and neutrino-proton scattering; special topics of current interest. (F)

228. Extragalactic Astronomy and Cosmology. (3) Three hours of lecture per week. A survey of physical cosmology—the study of the origin, evolution, and fate of the Universe. Topics include: the Friedman-Robertson-Walker model, thermal history and big bang nucleosynthesis; dark matter and dark energy, the formation and growth of galaxies and large scale structure, the anisotropy of the cosmic microwave radiation, inflation in the early Universe, tests of cosmological models, and current research areas. The course complements the material of Astronomy 218. Also listed as Astronomy C228. (F,SP) Davis, H. Olive, L. Stien, M. White

231. General Relativity. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 209 or equivalent, or consent of instructor. An introduction to Einstein’s theory of gravitation. Tensor analysis, general relativistic models for matter and electromagnetism, Einstein’s field equations. Applications, for example, to black holes, dense stars, black holes, and cosmology. (SP)

232A. Quantum Field Theory I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 221A-221B or equivalent or consent of instructor. Foundations of quantum field theory; canonical quantization of scalar, electromagnetic, and Dirac fields; derivation of Feynman rules; regularization and renormalization; introduction to the renormalization group; elements of path integral. (F)

232B. Quantum Field Theory II. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 232A or equivalent or consent of instructor. Renormalization of Yang-Mills gauge theories; BRST quantization of gauge theories; nonperturbative dynamics; renormalization group; basics of effective field theory; large N; solitons; instantons; dualities. Selected current topics. (SP)

233A. Standard Model and Beyond I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 232A or equivalent or consent of instructor. Advanced topics in the standard model and beyond: open problems in the standard model; supersymmetric models; grand unification; neutrino physics; theories with flat and warped extra dimensions; models at the TeV scale; low string/geometry scale. Selected current topics. (F)

234A. String Theory I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 232A or equivalent or consent of instructor. Introduction to string theory. Three hours of lecture and one hour of discussion per week. Prerequisites: 232A or equivalent or consent of instructor. Nonperturbative aspects of string theory. Topics selected from black holes; black branes; Bekenstein-Hawking entropy; D-branes; string dualities; M-theory; holographic principle and its realizations; AdS/CFT correspondence; gauge theory/gravity dualities; flux compactifications; cosmology in string theory; topological string theories. Selected current topics. (SP)

238. Advanced Atomic, Molecular, and Optical Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 110A, 130, 137A-137B, and 138; or consent of instructor. Contemporary topics in atomic, molecular, and optical physics are presented at an advanced level. These topics may include one or several of the following, at the discretion of the instructor: mechanical effects of light-atom interactions, ultra-cold atomic physics, molecular physics, quantum coherence, quantum optics, and probing particle physics with atoms and molecules. (F,SP)

240A-240B. Quantum Theory of Solids. (4/4) Three hours of lecture and one hour of discussion per week. Prerequisites: 141A-141B and 221A-221B or equivalents, or consent of instructor; 240A is prerequisite to 240B. Excitations and interactions in solids; crystal structures, symmetries, Bloch’s theorem; energy bands; electron dynamics; impurity states; lattice dynamics, phonons; many-electron interactions; density functional theory; dielectric functions, conductivity and optical properties; excitons; electron-phonon interactions, polarons, Fermi surfaces; magnetoresistance; electron-phonon coupling; Hall effect; transport processes, Boltzmann equation; superconductivity, BCS theory; many-body perturbation theory, Green’s functions. (F,SP)

242A-242B. Theoretical Plasma Physics. (4/4) Three hours of lecture and one hour of discussion per week. Prerequisites: 142. Analysis of plasma behavior according to the Vlasov-Fokker-Planck equations, guiding center and hydromagnetic descriptions. Study of equilibrium, stability, linear and nonlinear electromagnetic waves, transport, and interaction with radiation. Relativistic kinetic theory. (F,SP)

250. Special Topics in Physics. (2-4) Course may be repeated for credit with consent of instructor. Prerequisites: Consent of instructor. Topics will vary from semester to semester. See Department of Physics announcements. (F,SP) Staff
Plant and Microbial Biology (College of Natural Resources)

Department Office: 111 Koshland Hall, (510) 642-9999
Student Affairs Office: 111C Koshland Hall, (510) 642-5161
planbio.berkeley.edu

Chair, Brian Staskawicz, Ph.D.
Division Chair, Plant Biology: Brian Staskawicz, Ph.D.
Division Chair, Microbial Biology: Thomas Bruns, Ph.D.

Professors
Thomas D. Bruns, Ph.D. University of Michigan. Fungal molecular evolution
Bob B. Buchanan, Ph.D. Duke University. Plant microbiology
W. Zacheus Cole, Ph.D. Stanford University. Cell and developmental biology
John Coates, Ph.D. University College Galway. Geomicrobiology, bacterial diversity, industrial microbiology, bioremediation
L. E. James Feldman, Ph.D. Harvard University. Plant physiology/development
Robert Fischer, Ph.D. University of California, Berkeley. Plant genetics and molecular biology
Michael Kleine, Ph.D. University of Indiana. Plant development and gene regulation
N. Louise Glass, Ph.D. University of California, Davis. Fungal genetics
Andrew Q. Jackson, Ph.D. University of Manitoba, Canada. Plant virology
Russell L. Jones, Ph.D. University of Wales. Plant physiology
Sydney Kustu, Ph.D. University of California, Davis. Plant Regulation
Steven E. Lindow, Ph.D. University of Wisconsin. Bacterial ecology, physiology and epidemiology
Sheng Luan, Ph.D. Harvard University. Plant cell biology
Anastasios Melis, Ph.D. Florida State University. Biochemical genetics
Krishtal K. Nyogi, Ph.D. Massachusetts Institute of Technology. Plant signal transduction
Peter H. Quail, Ph.D. University of Sydney. Plant molecular biology
Chris Somerville, Ph.D. University of Alberta. bacterial genetics
Shaula Sonenblum, Ph.D. University of Illinois, Urbana-Champaign. Plant physiology
Brian J. Staskawicz, Ph.D. University of California, Berkeley. Plant molecular pathology
Zimmy Renee Sung, Ph.D. University of California, Berkeley. Plant molecular pathobiology
Patricia C. Zambryski, Ph.D. University of Colorado. Plant molecular biology
Watson M. Ladd, Ph.D. Emeritus, Ph.D. Richard Malamy, Ph.D. Rodric B. Park, Emeritus, Ph.D. Lloyd Volkman, Emeritus, Ph.D. John A. West, Emeritus, Ph.D.

Associate Professors
Steven E. Brenner, Ph.D. University of Cambridge. Cambridge, U.K. Computational structural and functional genomics
Kimmie Stajand, Ph.D. University of California, Santa Cruz. Computational biology

Assistant Professors
Britt Gaugiser, Ph.D. Baylor College of Medicine. Herpes viruses
Arash Kornelii, Ph.D. University of California, San Francisco. Bacterial cell biology
Kathleen Ryan, Ph.D. John Hopkins University School of Medicine. Bacterial cell cycle control and signal transduction
Chelsea Specht, Ph.D. New York University. Plant evolution and diversification
Michiko Taga, Ph.D. Princeton University. Symbiotic bacteria from eukaryotes
Mary Wildermuth, Ph.D. University of Colorado, Boulder. Biosynthesis of small molecules that mediate host-pathogen interactions
Daniel Zilberman, Ph.D. University of California, Los Angeles. Molecular cell, and development biology

Adjunct Professors
Sarah C. Hake, Ph.D. Washington University. Plant development
Shelia M. McCormick, Ph.D. University of Missouri. Plant reproductive biology
Athanassios Theologis, Ph.D. University of California, Los Angeles. Plant molecular biology

Adjunct Associate Professors
Barbara Baker, Ph.D. University of California, San Francisco. Genetics and disease resistance
Jennifer Fletcher, Ph.D. University of Utah. Plant physiology
Jay Hollick, Ph.D. University of Washington, Seattle. Epigenetics
Cheryl Kettler, Ph.D. University of California, Los Angeles. Structural biology/genomics
David Owe, Ph.D. Harvard University. Plant and viral gene expression

Adjunct Assistant Professor
Frank Harmon, Ph.D. University of California, Davis. Plant molecular biology

Cooperative Extension Specialist
Peggy Lemaux, Ph.D. University of Michigan

Undergraduate Advisers: Mr. Coates, Mr. Terry
Graduate Advisers: Ms. Zambryski (Chair), Mr. Fischer

Department Overview
The Department of Plant and Microbial Biology consists of the Division of Plant Biology and the Division of Microbial Biology. Programs for both undergraduate and graduate students have been designed to offer students maximum flexibility in defining their areas of interest. In addition to departmental resources that are available in Koshland Hall, the facilities of the College of Natural Resources Biological Imaging Facility and the United States Department of Agriculture Plant Gene Expression Center are available for the programs of the department.

The Division of Plant Biology.
The Division of Plant Biology program emphasizes basic research and its application to plants and promotes the design of plant biotechnologies. With an increasing awareness of environmental problems, global changes, and emerging food needs, plants are a focal point for new research initiatives and educational training programs. Understanding the biology of plants, their development, their responses to the environment, and the impact of human activities on the plant biosphere are many of the challenges that will continue to fuel the expansion of plant biology research well into the 21st century.

The Division of Microbial Biology.
The Division of Microbial Biology was established recently within the department to provide a focus for microbial biology at Berkeley. There is a growing awareness that microbes and microbial activities are essential to maintaining a high quality of life for all eukaryotes. Moreover, understanding the microbial world is necessary if we are to comprehend the global ecosystem, evolutionary history, and diversification of life on Earth. The 21st century will bring a new understanding of the workings of the global ecosystem and a wealth of new technologies derived from the microbial world. The new microbial biology research programs are designed to meet this challenge.

Undergraduate Program in Genetics and Plant Biology
The department’s undergraduate program in genetics and plant biology has been developed as a broadly based program emphasizing the study of plants from the molecular and genetic to organizational levels. Lower division courses are intended to produce a foundation in biological and physical sciences as preparation for advanced study at the upper division level.

Most of the departmental course offerings are accompanied by laboratory classes that focus further on the subject matter and introduce students to the latest techniques in molecular and plant biology. The department offers research opportunities in departmental research laboratories to qualified undergraduate students. These are pro-
Microbial biology is a pivotal field of study because microbes are the dominant life form and represent the overwhelming majority of the biomass on the planet. Microbes have fundamental roles in maintaining the health of the biosphere; they degrade environmental pollutants, they supply essential nutrients and chemicals directly to multicellular organisms, and they engage in numerous beneficial symbioses with higher organisms. By the same token, infectious diseases regulate populations of plants and animals and wreaks occur in human societies on a global scale. Microorganisms are the evolutionary precursors of chloroplasts and mitochondria, the energy-producing centers of plants and animals. To the study of evolutionary biology is not complete without an understanding of microbial biology.

Furthermore, the full diversity of the microbial world is poorly known, because many unique organisms and biochemical processes remain to be discovered. The renewal of appreciation of the relevance of microbes to all life means that there is an increasing demand in government and industry for employees with knowledge and skills related to microbial biology. The microbial biology (MB) major is designed for students interested in competing for such positions, for pre-med and pre-vet students, for students interested in biology in general, and for students interested in pursuing postgraduate education in biology.

Graduate Program in Microbiology

The Department of Plant and Microbial Biology administers the Graduate Group in Microbiology which awards the Ph.D. degree in Microbiology at UC Berkeley. A group of interdepartmental group of faculty who offer a program in an area which crosses departmental boundaries. The Graduate Program in Microbiology is composed of 52 faculty from diverse disciplines. The graduate program features an introductory seminar (Faculty Review Seminar), six five-week core course modules, and additional special-topic courses and seminars in areas of specialization. The core course modules are Microbial Genetics, Genomics and Computational Biology, Microbial Diversity and Evolution, Cell Structure and Function, Microbial Physiology, and Microbial Ecological.

For more information on the Graduate Group in Microbiology, see the full description under “Microbiology” in this catalog.

Lower Division Courses

10. Plants, Agriculture, and Society. (2) Two hours of lecture per week. Changes in agricultural practices in relation to population growth, the biology and social impact of plant disease, genetic engineering of plants: a thousand years of crop improvement and modern biotechnology, interactions between plants and their environment, and effects of human industrial and agricultural activity on plant ecosystems. Knowledge of the physical sciences is neither required nor assumed. (F) Staskawicz

13. Genetic Revolutions. (3) Two hours of lecture and one hour of discussion per week. Genetic discoveries have changed our lives. All are controversial. Especially changed are human physical and mental health, agriculture, social systems, and worldviews. Having many DNA-sequenced genomes, including human, accelerates discovery. This course will study the science, history, and philosophical implications behind past discoveries and will contemplate future genetic revolutions. (SP) Feingold

24. Freshman Seminar. (1) One hour of discussion per week. Must be taken on a passed/not passed basis. Formerly 20. Reading and discussion with Plant and Microbial Biology faculty on current research and topics in plant and microbial biology. Topics which may be discussed include microbial biology, plant genetics, plant development, plant pathology, agricultural biotechnology, and genetic engineering. Ideal for students who are considering a major in the Department of Plant and Microbial Biology. Enrollment is limited to 20 freshmen. (F,SP) Staff

39. Freshman/Sophomore Seminar Course. May be repeated for credit as topic varies. One hour of lecture per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP) Lindow

40. The (Secret) Life of Plants. (3) Two hours of lecture per week. Plants are the foundation of life on earth – they grow, reproduce, and respond to the environment (e.g., to light) in ways distinct from animals. Prevent the principles of generative biology. Basics of genetic engineering and biotechnology reveal how they are used to modify plants, and these socially relevant issues are discussed. Includes visits to modern plant biology laboratories, and aspects of plant disease and diversity. Knowledge of the physical sciences neither required nor assumed. (SP) Zambryski

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: Consent of instructor. Sophomore seminars are small interactive courses offered by faculty members to all students across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP) C96. Studying the Biological Sciences. (1) Two hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. This course will introduce students to the “culture” of the biological sciences, along with an in-depth orientation to the academic life and the culture of the university as they relate to majoring in biology. Students will learn about coursework, skills, and knowledge they can use in their major course and as future science professionals. Restricted to freshmen in the biology honors program. Also listed as Integrative Biology C96 and Molecular and Cell Biology C96. (F) Matsui

98. Directed Group Study. (1-3) Course may be repeated for credit. One to three hours of directed group study per week. Must be taken on a passed/not passed basis. Lectures and small group discussions focus on topics of interest, varying from semester to semester. Staff.

99. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Individual meetings. Must be taken on a passed/not passed basis. Prerequisites: GPA of 3.4 or higher; lower division status. Lower division independent study and research intended for the academically superior student. Enrollment only with prior approval of faculty advisor directing the research. (F,SP) Staff

Upper Division Courses

C102. Diversity of Plants and Fungi. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with C102L. An integrated treatment of the biology and evolution of the major groups in the plant, algal, and fungal kingdoms. Also listed as Integrative Biology C101. (F) Staff

C102L. Laboratory in the Diversity of Plants and Fungi. (2) Four hours of laboratory per week and two 1-day field trips. Prerequisites: Biology 1A-1B. Must be taken concurrently with C102. Laboratory for C102. Also listed as Integrative Biology C101L. (F) Staff

C103. Bacterial Pathogenesis. (3) Three hours of lecture per week. Prerequisites: Molecular and Cell Biology C102 or consent of instructor. This course for upper division and graduate students will explore the molecular and cellular basis of microbial pathogenesis. The course will focus on model microbial systems which illustrate mechanisms of pathogenesis. Most of the emphasis will be on bacterial pathogen of...
mammals, but there will be some discussion of viral and protozoan pathogens. There will be an emphasis on experimental approaches. The course will also include selected bacterial, fungal, and viral genetics and microbiology, immune response to infection, and the cell biology of host-parasite interactions. Also listed as Public Health C102 and Molecular and Cell Biology C103. (SP) Portnoy

C110. Principles of Plant Morphology. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B; must be taken concurrently with 107L. Formerly 100L. An analysis of the structural diversity of multicellular plants, especially the higher forms, with emphasis on developmental mechanisms responsible for this variation in form and the significance of this diversity in relation to the environments in which plants grow. Also listed as Integrative Biology C107. (F) Staff

C107L. Laboratory for Principles of Plant Morphology. (2) Six hours of laboratory per week. Prerequisites: Biology 1A-1B; must be taken concurrently with 107L. Formerly 100IL. Laboratory designed to accompany C107, Principles of Plant Morphology. Also listed as Integrative Biology C107L. (F) Staff

110. Biology of Fungi. (2) Two hours of lecture per week. This course is designed to introduce students to the fundamentals of molecular biology, and to the bioinformatics tools and databases used for the prediction of protein function and structure. It is designed to be taken concurrently with C144 (which provides the theoretical background), although students can petition to take this laboratory course separately. No programming experience is required. Also listed as Bioengineering C144L. (F) Sjolander

C145. Genomics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Molecular and Cell Biology 102 or 110. In-depth introduction to genomics, including: genome sequencing; bioinformatics; microarray analysis; complex trait mapping; DNA microarrays and their uses; proteomics; structural genomics. Also listed as Molecular and Cell Biology C145. (SP) Brenner, Eisen

C146. Topics in Computational Biology and Genomics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Bioengineering 142, Computer Science 61A, or equivalent ability to write programs in Java, Perl, C, or C++; Molecular and Cell Biology 102, or equivalent; or consent of instructor. Introduction and discussion of topics in genomics and computational biology. Working from evolutionary concepts, the course will cover principles and application of molecular sequence comparison, genome sequencing, bioinformatics, and phylogenetic analysis. Also listed as Molecular and Cell Biology C146. (SP) Brenner, Eisen

C148. Microbial Genomics and Genomics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B; Integrative Biology C150A or Molecular and Cell Biology C150. Formerly Plant and Microbial Biology 118. Course emphasizes bacterial and archaeal genomics and comparative genomics. Genomics and genomics methods are used to dissect metabolic processes in bacteria, archaea, and selected microbial eukaryotes. Genetic mechanisms integrated with genomic information to address integration and diversity of evolution of genomes and the use of computational tools for a comparative analysis of microbial genomes and determining relationships among bacteria, archaea, and microbial eukaryotes. Also listed as Molecular and Cell Biology C148. (SP) Brenner, Glass

150. Plant Cell Biology. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B. An introduction to the structure, dynamics, and function of plant cells: organelle structure and development; intracellular trafficking of small and macromolecular cargo; cellular signaling; cell division and specialization. (F) Luan, Sung

150L. Laboratory for Plant Cell Biology. (1) Three hours of laboratory/discussion per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with 150. Designed to accompany the lecture course and to stimulate students to use computational tools for studying cell biology. (F) Luan, Sung

160. Plant Molecular Genetics. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B. A consideration of plant genetics and molecular biology. Principles of nuclear and organellar genome structure and function; gene expression in response to environmental and developmental stimuli; clonal analysis; investigation of the molecular and genetic bases for the exceptional cellular and developmental strategies adopted by plants. (SP) Fischer, Hake

160L. Laboratory for Plant Molecular Genetics. (1) Three hours of lecture/discussion per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with 160. Laboratory designed to accompany 160, Plant Molecular Genetics. (SP) Hake

170. Modern Applications of Plant Biotechnology. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B. This course is designed to introduce students to the principles and applications of modern plant biotechnology. Modern agriculture will be reviewed in light of emerging biotechnology applications. Emphasis will be placed on understanding the tools and strategies involved in optimizing plant productivity. (SP) Staskawicz, Jackson
180. Environmental Plant Biology. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B. An integrated and multidisciplinary approach to the study of interactions between plants and the environment. Introduces physical parameters in the global and micro-environment that affect plant function; and molecular, cellular, and developmental aspects of plant response under stress conditions. Includes topics such as: light microscopy, physiology, and molecular biology of plant adaptation and acclimation mechanisms. Examines consequences of industrial activity on plant growth and productivity. (SP) Melis, Terry

185. Techniques in Light Microscopy. (3) Two hours of lecture, three hours of laboratory per week. The course will be a detailed overview of the practice of light microscopy as applied to scientific investigation. The emphasis of the course will be on the correct and appropriate use of the light microscope for biological scientists; however students of other disciplines are welcome. The course will cover optical microscope theory, microscope components and mechanics, and optical techniques including detailed descriptions, demonstrations, and use of all the modern light microscope contrast methods. Also, the course will cover contemporary digital methods of 2D imaging for fluorescence microscopy, fluorescence microscopy, confocal and deconvolution microscopy. Since digital image processing is an important part of microscope imaging, the course will include a thorough survey of 2D, 3D, and 4D image processing and analysis software. Students will receive hands-on experience in all microscope and digital imaging techniques via direct instruction and use of instrumentation in the Center of Natural Resources Biological Imaging Facility. (F) Ruzin

190. Special Topics in Plant and Microbial Biology. (1-4) Course may be repeated for credit as topic varies. One to four hours of lecture per week. Prerequisites: Upper division standing or consent of instructor. This class is designed to develop skills in critical analysis of specific plant and/or microbial biology issues. Topics may vary from semester to semester. (F,SP) Staff

H195. Honors Research. (1-4) Course may be repeated for credit. Prerequisites: Enrollment in departmental honors program. Upper GPA of 3.20 or better; consent of instructor. Individual laboratory research followed by a written report and an oral presentation under the supervision of a faculty member. (F,SP) Staff

198. Directed Group Studies in Plant Biology. (1-3) Three hours of discussion per week. Prerequisites: Enrollment in departmental honors program. Upper GPA of 3.0; consent of instructor. Group studies of selected topics. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Five hours of lecture and one and one-half hours of discussion per week. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Wang

200. Plant Cell Biology. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The aim of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Luan

200E. Plant Biochemistry. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The aim of this course is to highlight the specific hallmarks of systems biology. Students will be informed of the many resources for systems biology available to plant biologists and the recent published work that capitalizes on these resources. Each lecture will focus on fundamental principles followed by discussion of papers that generate new questions. (SP) Hamroun

201. Faculty Research Review. (2) Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Presentation and discussion of faculty research in the areas of plant biology. Faculty speakers review recent advances in their area of expertise and present an outlook of current research activities in their laboratories. The format of the class is designed to stimulate a dialogue between instructor and students in the course of each presentation. (F) Staff

202. Faculty Research Review. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor; overall GPA of 3.0. Enrollment restrictions apply; see the “Introduction to Courses and Curricula” section of this catalog. (F,SP) Staff

205. Special topics and advanced seminars in plant and microbial biology. (1-3) Consent is required for credit. Must be taken on a pass/not pass basis. Prerequisites: Consent of instructor; overall GPA of 3.0. Enrollment restrictions apply; see the “Introduction to Courses and Curricula” section of this catalog. (F,SP) Staff

206A. Plant Developmental Genetics. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Melis

206B. Genomics and Computational Biology. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. Principles of computational and genomic biology. Covers evolutionary, algorithmic, and statistical foundation issues. Formerly Environmental Science, Policy, and Management 238A. Special topics and advanced seminars in plant pathology. Seminar/discussion by graduate students of current research in the field of plant pathogenic bacteria. (SP) Lindow

206C. Plant Diversity and Evolution. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Ryan

209B. Critical Thinking in Microbiology. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Ryan

210. Scientific Reasoning and Logic. (1) One hour of lecture per week. The objectives of this class are to teach students to critically read and interpret scientific papers. Students are expected to read strongly and poorly reasoned papers. At the end of the class the student should understand the logic and reasoning which make a paper strong, often classic, contribution. (F) McCormick

210C. Critical Thinking in Microbiology. (1) One hour of lecture per week. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Ryan

210D. Plant Cell Biology. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Ryan

210E. Plant Biochemistry. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The objective of this course is to augment the student’s knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student’s knowledge of biochemical genetics in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation. (SP) Ryan

212. Microbial Diversity Workshop. (1) One hour of workshop per week. Prerequisites: Graduate standing; C112 or consent of instructor and organic chemistry (may be taken concurrently). This workshop for graduate students will parallel C116, Microbial Diversity, which should be taken concurrently. Emphasis in the workshop will be on review of research literature and formulation of paper pertinent to research in microbial diversity. Also listed as Molecular and Cell Biology C216. (SP) Staff

220. Critical Thinking in Microbiology. (3) One and one-half hours of lecture and one and one-half hours of discussion per week. Prerequisites: C112 or equivalent (may be taken concurrently). An overview of microbial evolution (including phylogenetics and population genetics), physiology and biochemistry, genetics and development, host parasite interactions, and ecology will be provided, emphasizing new research directions and involving students in discussions of primary literature. Conceptual issues and/or research approaches and technologies that will provide a broad perspective of microbiology will be discussed. Readings and discussions of recent primary literature will enable students to develop skills in critical analysis of literature. (SP) Lindow

220A. Microbial Genetics. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The students will be provided with both the basic framework and current topics of microbial genetics and evolution. (SP) Ryan

220B. Genomics and Computational Biology. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The students will be provided with both the basic framework and current topics of microbial genetics and evolution. (SP) Ryan

220C. Microbial Diversity and Evolution. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The students will be provided with both the basic framework and current topics of microbial physiology, (SP) Coates

220D. Cell Structure and Function. (1.5) Three hours of lecture and one and one-half hours of discussion for five weeks. Prerequisites: Consent of instructor. The students will be provided with both the basic framework and current topics of microbial genetics and evolution. (SP) Ryan

222. Biochemistry of Biofuels: Concepts and Foundations. (1) One hour of lecture per week. Prerequisites: Consent of instructor. This course offers a consideration of enzymes, genes, metabolic pathways and biochemical processes leading to the generation of hydrogen, bio-ols, ethanol, and other biofuels. Discussion of biochemistry is extended to cover product yields and techno-economic analyses of commercial biofuels. The course focuses on selected topics of microbial biology. Lectures are based on historical and contemporary papers in plant and microbial biochemistry, integrating structure, function and evolution of the molecular, cellular, and organismal levels, and discussing how this knowledge can be applied in the generation of renewable biofuels. (SP) Buchman, Melis

238. Readings in Environmental Microbiology. (1) Course may be repeated for credit. One hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly Environmental Science, Policy, and Management 238A. Special topics and advanced seminars in plant pathology. Seminar/discussion by graduate students of current research in the field of plant pathogenic bacteria. (SP) Lindow

244. Introduction to Protein Informatics. (4) Three hours of lecture and one hour of discussion per week.
C244L. Protein Informatics Laboratory. (2) Six hours of laboratory per week. Prerequisites: C244 (can be taken concurrently) or consent of instructor. No programming experience required. This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be self-contained and currently with C244 (which provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take this laboratory on a self-paced basis. No programming is performed in this class, and no prior programming experience is required. Also listed as Bioengineering C244L. (F, SP) Siplander

C246. Topics in Computational Biology and Genomics. (4) Topics three hours of lecture, one and one-half hours of paper review, and discussion per week. Prerequisites: Bioengineering 142, Computer Science 61A, or equivalent ability to write programs in Java, Perl, C, or C++; Molecular and Cell Biology C100A, 102 (or equivalent), or consent of instructor. Discussion and topics of discussion in genomics and computational biology. Working from evolutionary concepts, the course will cover principles and application of molecular sequence comparison, genome sequencing and functional annotation, and phylogenetic analysis. (SP) Brenner, Eisen

290. Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Advanced study and discussion in various fields of plant biology. Topics will be announced in advance for each semester. Enrollment in more than one section permitted. (F, SP) Staff

297. Grant Writing and Research Presentations. (2) Two hours of lecture per week. Each student will write a grant proposal in three steps: a one page outline, a three-page pre-proposal, and a complete 10-page grant proposal. There will be feedback at each step. A grant proposal will be reviewed and discussed in each of the other grant proposals. Some of the scheduled classes will include discussion of the outlines and pre-proposals, and the last class will be organized as a grant panel, with students assigned as primary and secondary reviewers. Other sections will be offered at the discretion of the instructor. Prerequisites: Consent of instructor. Advanced study of research topics which will vary semester to semester. Enroll in more than one section permitted. (F, SP) Staff

298. Plant Biology Group Studies. (1-6) Course may be repeated for credit. One hour of lecture/discussion per week per unit. Sections 1-2 to be offered on a satisfactory/unsatisfactory basis. Section 3 to be offered on a satisfactory/unsatisfactory basis. Other sections will be offered at the discretion of the instructor. Prerequisites: Consent of instructor. Advanced study of research topics which will vary semester to semester. Enroll in more than one section permitted. (F, SP) Staff

299. Graduate Research. (1-12) Course may be repeated for credit. Three hours of research/labouratory per week per unit. Prerequisites: Graduate standing. Graduate student research. (F, SP) Staff

Graduate Courses

602. Individual Study for Graduate Students. (1-8) Course may be repeated for credit. Course does not satisfy any course requirement or degree requirement for doctoral degree. One one-hour meeting per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F, SP) Staff

Professional Courses

300. Workshop on Teaching. (2) Course may be repeated for a maximum of 4 units. Two hours of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Offered at the discretion of the instructor. No programming experience required. This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be self-contained and currently with C244 (which provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take this laboratory on a self-paced basis. No programming is performed in this class, and no prior programming experience is required. Also listed as Bioengineering C244L. (F, SP) Siplander

400. Digital Imaging for Biologists. (2) Three hours of lecture/demonstration per week. Basic concepts and common applications in digital image processing and analysis with the goal of extracting morphometric and functional figures. Topics include image acquisition (including cameras), beginning image processing and analysis, and digital image enhancements. Photoshop, Canvas, IP Lab, and other commonly available computer programs on Mac and PC platforms will be used. Additional lectures on file formats usage and advanced document layout are included. (F) Řuzín

Political Economy

(College of Letters and Science)


Faculty Advisers

Vinod Agarwala (Political Science) Max Planck Autonomous University (International and Area Studies)

Richard M. Buxbaum (Linguistics) Stephen Cohen (City and Regional Planning)

Robert Kagan (Political Science) Beverly Crawford (International and Area Studies)

Alan Krakov (International and Area Studies) John Lie (International and Area Studies)

Jonathan Leonard (Business Administration) John Liu (International and Area Studies)

Stephen Vogel (Political Science) Steven Weber (Political Science)

John Zysman (Political Science)

Program in Political Economy

The Program in Political Economy (formerly Political Economic of Industrial Societies) introduces students to issues relevant to the political and economic institutions of modern societies, focusing on problems of both domestic and international policy. It is designed to give students a broad understanding of the political and social forces that have shaped the world economic and political landscape. The program is intended for students who are interested in the application of economic principles to the study of international and domestic political processes. The program is open to students majoring in political science, economics, or related fields, and to those who wish to pursue a career in public policy analysis, advocacy, or research.

Principles of Political Economy

This course introduces students to the fundamental concepts and principles of political economy. It covers the history of political economy, the evolution of economic thought, and the current state of the field. The course focuses on the analysis of economic systems, the role of government in the economy, and the relationship between economic and political processes. The course is taught by a group of faculty members from the departments of political science, economics, and related fields. The course is designed for students who have a strong background in economics and political science, and who are interested in pursuing a career in public policy analysis or advocacy. The course is offered each semester, and prerequisites include a strong background in economics and political science.
There is considerable flexibility within Political Economy for students to construct programs appropriate to their intellectual interests and the global areas they wish to stress in their studies. There are three core course requirements that each student must meet. These requirements are designed to provide all Political Economy students with a common background of knowledge and understanding of key intellectual reference points. The program consists of three tiers of coursework and a foreign language requirement: (1) four lower division courses provide necessary historical, political, quantitative, linguistic, and economic skills essential for upper division coursework and for future career and educational options; (2) six upper division core courses provide detailed background for studying modern political economies; and (3) four courses provide in-depth study in the student’s chosen issue or problem.

In addition to the requirements outlined above, all PEIS majors must demonstrate proficiency in a single modern foreign language, other than English, equivalent to four college-level semesters.

**Foreign Language Requirement.** There are three ways that students can fulfill the four-semester language requirement for PEIS, depending on their background and ability:

1. **Through coursework.** A combination of high school, college, summer program, or college-level study abroad programs could satisfy the language requirement. At a minimum, students must complete the fourth semester of a language with a grade of C- or better. The first, second, and third level of language may be taken on a passed/not passed basis. The fourth semester must be taken for a letter grade. Language courses need not be taken at Berkeley; courses taken at a community college or any accredited school or university are acceptable. Advanced Placement Language Test scores of 5 complete the requirement. However, transcripts and score reports must be provided. See an adviser in the IAS office concerning language study abroad.

2. **With a proficiency examination.** Students whose language skills are at a fourth semester or beyond capability and who do not wish to take language courses can opt to test out of the requirement. However, not all of Berkeley’s language department offers proficiency exams. See a Political Economy adviser about specific departmental policies.

3. **Being a non-native English speaker.** Non-native speakers of English may use their native language to satisfy this requirement; however, documentation of fourth-semester ability is still required. Students can take a proficiency test (see above) or, alternatively, provide documentation that they have been educated in their native language at least through high school or the equivalent.

**Lower Division.** There are four required courses at the lower division level. Lower division requirements may be satisfied by: (1) successfully completing the appropriate course or its equivalent, (2) providing evidence of AP credit, or (3) with prior consent from a faculty adviser, satisfactorily completing proficiency exams. See the Handbook with adviser approval. Third, courses have been evaluated and chosen for all the courses listed in the Political Economy Handbook have been evaluated and chosen for their appropriateness to concentration topics. However, you may also choose courses not listed in the handbook with adviser approval. Third, courses taken for your concentration cannot be double-counted toward another requirement. Your concentration statement and courses need to be approved before you take any concentration courses and must be re-approved any time you wish to change your statement or any of your course choices.

**Minor in European Studies**

The minor in European studies is open to all undergraduates, except Political Economy majors. Applications for the minor and a list of appropriate courses are available from the IAS office. Minor applications must be submitted no later than the last day of instruction of the semester immediately preceding the final semester.

**Requirements:** Students must complete six upper division courses, including Political Economy 100 and 101. The remaining four courses must be concentrated in two of three specified fields: politics, business/economics, and culture and society; they must be distributed evenly among the two chosen fields (i.e., two courses per field).

Note: In fulfilling the upper division major requirements, students should keep in mind that no more than three courses outside the College of Letters and Science may be taken for major programs and no course used to complete major requirements may be taken on a passed/not passed basis.

**Course Tools.**

Section A: Two courses in intermediate economics. Choose one of the following sequences: Economics 100A-100B or Economics 101A-101B or IAS 106-107 or UGBA 101A-101B.

**Introductory Sequence: Historical Context**

Section A: One course in classical works: Political Economy 100.

Section B: One course in the rise of the industrial state: Economics 113, 115; History 124A, 124B, 125B, 131B, 158C, 159A, 159B, 160, 161; Political Economy 130*, 150*; Political Science 122A; UGBA C172.

**Introductory Sequence: Political Economy**

One course: City and Regional Planning 112A; Environmental Economics and Policy 181*; Geography C110; History 158C, 159A; Interdisciplinary Studies 100E; Political Economy 130*, 150*; Political Science 5 (formerly PS 120A), 126A, 138B, 138E; Sociology 145, UGBA 107.

* contingent on advisor approval of section topic

**Concentration**

Four courses. The concentration is the heart of the major. It is the topic or theme within the area of political economy that students choose and define. This part of the program is meant to give students the opportunity to deepen their understanding of the nature of the relationship between politics and economics as it relates to a particular issue. The concentration must be a somewhat broadly based issue or problem within political economy. Students are encouraged to be imaginative in defining a concentration and to discuss their ideas with a faculty or staff adviser before selecting their courses. All concentration courses and topics must be approved by a staff adviser.

In choosing your concentration courses, you should consider the following things: First, select courses from different departments. You may choose no more than two courses from the same department. This ensures that you will have the fullest possible understanding of your concentration. Second, all the courses listed in the Political Economy Handbook have been evaluated and chosen for their appropriateness to concentration topics. However, you may also choose courses not listed in the handbook with adviser approval. Third, courses taken for your concentration cannot be double-counted toward another requirement. Your concentration statement and courses need to be approved before you take any concentration courses and must be re-approved any time you wish to change your statement or any of your course choices.

The following college requirements also apply: (1) at least three of the upper division courses must be taken at Berkeley; (2) all courses must be taken for a letter grade; (3) a minimum GPA of 2.0 must be achieved in all coursework used to satisfy the minor requirements; and (4) no more than one course can satisfy requirements for both a major and a minor.

**Lower Division Courses**

84. **Sophomore Seminar.** (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for one semester. One and one-half hours of seminar per week per unit for ten weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be controlled on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: Admission on a first-come, first-served basis. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and from semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. **Directed Group Study.** (1-4) Course may be repeated for credit. Group meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Student-directed course under the supervision of a faculty member. Subject matter to change from semester to semester. (F,SP)

100. **Classical Theories of Political Economy.** (4) Three hours of lecture and one hour of discussion per week. One-half semester lecture offered each semester. In-depth analysis of the classical political economy literature, including such authors as Locke, Smith, Marx, Mills, and Weber to Veblen and Polanyi. Emphasis is placed on discussing the background for understanding the evolution of the literature that has emanated from the various social science disciplines which forms the basis of modern political economy. (F,SP)

101. **Contemporary Theories of Political Economy.** (4) Three hours of lecture and one hour of discussion per week. This course is designed to introduce students to modern theoretical works of central intellectual debates on 20th-century international political economy. The course explores and questions for inequality in economic development among nations and economic declines of the dominant powers. It will also examine tensions between the increasingly “globalized” nature of that economic phenomenon and the fragmentation of the international political system in nation-states. (F,SP)

130. **Cross-Listed Topics.** (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to Political Economy majors. Content and unit values vary from course to course. (F,SP)

140. **Special Topics.** (2) Course may be repeated for credit. Three hours of lecture per week for eight weeks. Prerequisites: Consent of instructor. A short course designed to provide a vehicle to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to political economy or related social sciences. Advanced multidisciplinary research in current issues of political economy and industrialization. Seminars will focus on specific regional or countries. (F,SP)

150. **Advanced Study in Political Economy of Industrial Societies.** (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor and background in political economy or related social sciences. Students are encouraged to be imaginative in defining a concentration and to discuss their ideas with a faculty or staff adviser before selecting their courses. All concentration courses and topics must be approved by a staff adviser. This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to Political Economy majors. Content and unit values vary from course to course. (F,SP)
Political Science (College of Letters and Science)

Department Office: 210 Barrows Hall, (510) 642-6324
Chair: Paul Pierson, Ph.D.

Professors
Vinod K. Agarwala, Ph.D. Stanford University. International relations, security, economic analysis
Mark Bevir, PhD. Phil. Merton College, Oxford University. Political theory, philosophy
Henry E. Brady, Ph.D. Massachusetts Institute of Technology. Comparative politics, American and Canadian politics, political behavior
M. Steven Fish, Ph.D. Stanford University. Comparative politics, post-communist countries
Wendy Brown, Ph.D. Princeton University. Contemporary American politics
Bruce E. Cain, Ph.D. Harvard University. California politics, state and local politics, American politics
Pradeep K. Chhibber, Ph.D. University of California, Los Angeles. South Asian politics, comparative political economy
Jacob Citrin, Ph.D. University of California, Berkeley. Political economy, comparative government
David Collier, Ph.D. University of Chicago. Comparative politics, Latin America, methodology
Lowell Dittmer, Ph.D. National University of Singapore. Comparative politics, China
T. J. Pempel, Ph.D. Columbia University. Comparative politics, political economy, contemporary Japan and Asian regionalism
Paul Pierson, Ph.D. Yale University. Comparative political economy, public response to poverty in Western Europe and the United States
Robert L. Powell, Ph.D. University of California, Berkeley. Formal theory, methodology
Robert M. Price, Ph.D. University of California, Berkeley. Comparative politics, African politics
Gerard Roland, Ph.D. École des Hautes Études en Sciences Sociales (EHESS). Transition, political, and institutional economics
Shannon C. Stimson, Ph.D. Harvard University. Political theory, philosophy of foreign affairs
Philip E. Tetlock, Ph.D. Harvard University. Political psychology, cognitive style, political-economic forecasting
D. Paul Thomas, Ph.D. Harvard University. Political theory, Marxian theory
David J. Vogel, Ph.D. Princeton University. Comparative politics, political economy, environmental issues
Steven K. Vogel, Ph.D. University of California, Berkeley. Japan, comparative politics, comparative and international political economy
Steven Weber, Ph.D. Stanford University. International relations, defense, national security
Margaret M. Weir, Ph.D. University of Chicago. Historical and political sociology, employment, race, poverty, urban issues
John Zysman, Ph.D. Massachusetts Institute of Technology. Comparative politics, comparative European politics

*Professor of the Graduate School

**Assistant Professor

†Recipient of Distinguished Teaching Award

The New Requirements

The new requirements do not apply to students declaring and completing the major listed below. For freshmen admitted prior to fall 2008, completing any two of the introductory courses (from Political Science 1, 2, 3, 4, 5), Political Science 3, and eight upper division political science courses and one history course, totaling a total of 12 courses (48 units). Within the major, students are required to take at least one course in each of the five primary subfields—American Politics, Comparative Politics, Empirical Methods, and International Relations—and must also specialize in one subfield by completing the introductory course and two upper division courses in that subfield. Completion of any two of the introductory courses is required to declare the major.

For freshmen who entered Berkeley prior to fall 2008, and juniors transferred admitted prior to fall 2009, the requirements for the major are: Political Science 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and any seven upper division political science courses and one history course, totaling a total of 12 courses (48 units). Completion of any two of the introductory courses is required to declare the major.

Advanced placement credit does not satisfy any major prerequisites, but students scoring 4 or 5 on the American Government Advanced Placement exam may substitute in upper division American politics for Political Science 1, before or after declaring the major. This course, however, may not also be used to fulfill an upper division requirement.

A list of approved history courses, specific requirement information, and detailed course descriptions are available on the Department of Political Science web page at polisci.berkeley.edu/Undergrad/undergrad.html.
All major requirements must be taken on a letter-grade basis.

To declare the major, students must have completed the minimum eligibility requirements in place when they were first admitted to Berkeley (see above), and must attend a declaration-orientation session. The schedule is posted on our web site at polisci.berkeley.edu/ugrad/declarationows.asp. Declarations must be done in person. Transfer students may go to the web site at assist.org for a list of California community college courses that satisfy University and major requirements.

Honors Program. Declared political science majors with a 3.5 GPA in the major and a 3.3 GPA overall, who have senior standing and who have completed Political Science 3 and at least two letter-graded upper division political science courses at Berkeley are eligible to apply for the honors program. The honors program consists of a two-semester seminar, H190A and H190B (offered in fall/spring only), and culminates in the writing of an honors thesis. Students must also obtain the approval of the American Nationalism member of the faculty who will guide the research. Applications can be made online only at polisci.berkeley.edu/Ugrad/honors.html. Departmental honors are awarded upon completion of the honors seminar with a grade of B+ or better, a minimum GPA of 3.5 in the major, and a 3.3 in overall work at Berkeley. For complete details, please consult an undergraduate advisor. Transfer students may go to the web site at polisci.berkeley.edu/ugrad/honors.html.

Further Information. For specific information on field or area concentrations in political science, consult faculty members.

Graduate Program

Information about the graduate program may be obtained from the departmental web site at polisci.berkeley.edu/grad/grad.html.

Lower Division Courses

1. Introduction to American Politics. (3) Three hours of lecture and one or two hours of discussion per week. An introductionary analysis of the structure and operations of the American political system, primarily at the national level. (F,SP)

1AC. Introduction to American Politics. (3) Four hours of lecture and one and one-half hours of discussion per week. Politics is the art and noise of collective governance under conditions of scarce resources, conflicting interests, diverse beliefs, uncertain outcomes, and unequal power. In 1AC, we learn about the institutions, ideologies, and processes that constitute the American political system. If you have AC requirements, we further examine how power, equity, and diversity are configured and contested in our politics. The course emphasizes active research- and group-based learning. (F,SP)

2. Introduction to Comparative Politics. (3) Three hours of lecture and one or two hours of discussion per week. This course deals with the basic problems and processes that all political systems face and examines their particular expression in Western, Communist, and Third World settings. (F,SP)

3. Introduction to Empirical Analysis and Quantitative Methods. (4) Three hours of lecture and one or two hours of discussion per week. Analytical and methodological problems of political inquiry, with an emphasis on quantification and measurement. (F,SP)

4. Introduction to Political Theory. (3) Three hours of lecture and one or two hours of discussion per week. An introduction to the understanding of politics through the perspectives and language of the political theorist.

5. Introduction to International Relations. (3) Three hours of lecture and one to two hours of discussion per week. This course is designed to introduce students to the major theoretical approaches to international politics, to explore important historical and contemporary questions and debates in international affairs, and to teach students to think critically about international relations. It is a prerequisite for several upper division international relations courses in political science. (F,SP) Staff

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-6 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

39. Freshman/Sophomore Seminar. Course may be repeated for credit when topic changes. One hour of seminar per unit. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments and vary from semester to semester and from department to department and semester to semester. (F,SP)

41. Freshman Seminar. (4) Course may be repeated for credit with department consent. Three hours of seminar and one hour of conference per week. Topics, experimental in nature, will vary from year to year.

60AC. What Is Political Freedom? (3) Three hours of lecture and one and one-half hours of discussion per week. Explores meanings and conundrums of political freedom. What is freedom, how does it relate to other political values (equality, security, community, cultural preservation), how is it won and lost? Canonical political thinkers (Socrates, Machiavelli, Rousseau, Marx, Mill, Arendt, Fanon, Foucault) are read with novels, legal cases, and material on contemporary controversies. Issues include free speech and hate speech, capitalism, freedom and empire, and nonviolent emancipation, rights and identity, racial profiling. This course satisfies the American Cultures requirement. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit with department consent. Three hours of seminar per week per unit for five weeks. One and one-half hours of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks.

105. The Politician. (4) Three hours of lecture and one hour of discussion per week. The nature of politics, the education of politicians, the structure of ambition, and the ethical values of social behavior in the political world. Students will be exposed to the legal and ethical workers on their vocation. Direct field research.

105W. The Politician. (3) Three hours of seminar per week. Prerequisites: Admittance to UC Berkeley Washington Program. For details see learning.berkeley.edu/ucdc. The nature of politics, the education of politicians, the structure of ambition, and the ethical values of social behavior in the political world. Sessions with elected officials and party workers on their vocation. Directed field research.

106A. American Politics: Campaign Strategy—Media. (3) Three hours of lecture per week. Prerequisites: Junior or senior standing. An inside look at how political campaign strategy and media operate from the viewpoint of the media, taught by the people who run them. Class material will be directed towards students who are interested in direct involvement in campaign politics or who are looking for a greater understanding of the political process. Students will be required to develop a complete written campaign strategy document in order to fulfill class requirements. Students will be expected to follow political and campaign news via the media and be prepared to discuss those developments in class.

108A. Politics, Ethics, and Leadership. (4) Three to four hours of lecture and up to three hours of discussion per week. Those who decide to participate in politics must inevitably make ethical choices. Too often, the moral bases of political decisions are unexamined. This course looks at the political choices of leaders and citizens as they relate to honesty and to justice in the contest for public attention and to the appropriate exercise of power, fairness in process and policy outcome, political obligations and duties, and the nature of political calculation. This material will be based on case studies of political choices, relevant legal cases, comparative politics, guest speakers with political experience, and ethical theory. (F,SP)

108AW. Ethics, Politics, and Leadership. (4) Students will not receive credit for 108A if they are taking 108A. Three hours of seminar and one hour of seminar meeting time with instructor per week. Prerequisites: Admittance to the UC Berkeley Washington Program.

Upper Division Courses

American Politics

102. The American Executive. (3) Three hours of lecture and one hour of discussion per week. Analysis of principal institutions, functions, and problems of the Presidency and the federal executive branch. Special attention will be given to topics of presidential leadership, staffing, executive-legislative relations, and decision-making. Comparison of executive processes in other political systems. (F,SP)

103. Congress. (3) Three hours of lecture and one to three hours of discussion per week. Prerequisites: 1 or consent of instructor. Nomination and election, congressional relations, the formal and informal structures of both houses, relations with the executive branch, policy formation, and lobbying. (F,SP)

103W. Congress. (3) Three hours of seminar per week. Prerequisites: Admittance to UC Berkeley Washington Program. For details, see learning.berkeley.edu/ucdc. Nomination and election, constituent relations, the formal and informal structures of both houses, relations with the executive branch, policy formation, and lobbying. Sessions with Washington experts on Congress. Observation of congressional hearings and debates.

104. Political Parties. (3) Three hours of lecture and one hour of discussion per week. The institutional environment within which American politics takes place. Concept and history of parties in the American political system and the factors that influence their development. Party organization and structure, State, national, and local party systems and their variations. Nominations and elections. One directed research paper will be required. (F,SP) Staff

105. The Politician. (3) Three hours of lecture and one hour of discussion per week. The nature of politics, the education of politicians, the structure of ambition, and the ethical values of social behavior in the political world. Sessions with elected officials and party workers on their vocation. Directed field research.

109W. The Politician. (3) Three hours of seminar per week. Prerequisites: Admittance to UC Berkeley Washington Program. For details see learning.berkeley. edu/ucdc. The nature of politics, the education of politicians, the structure of ambition, and the ethical values of social behavior in the political world. Sessions with elected officials and party workers on their vocation.
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See learning.berkeley.edu/ucdc for details. Those who decide to participate in politics must inevitably make ethical choices. Too often, the moral bases of political decisions are ignored. This course looks at the political choices of leaders and citizens as they relate to honesty and public rhetoric, corruption and public trust, influence and the appropriate exercise of power, fairness and moral dimensions of the outcomes, political obligations and duties, and the nature of political calculation. The materials of this course will be drawn from case studies of political choices, relevant legal cases, contemporary guest speakers with political experience, and ethical theory. (F,SP) Staff

109. Special Topics in American Politics. Three hours of lecture and one hour of discussion per week. See department web site for specific course offerings. (F,SP) Staff

109W. Selected Topics in American Politics—UCDC. (3) Three hours of seminar per week. Prerequisites: Admission to UC Berkeley Washington Program. For details, see learning.berkeley.edu/ucdc. Formerly 108W. Topics will vary.

110B. Cal-in-Sacramento. (2) Course may be repeated for credit with consent of department. Two hours of seminar per week. Must be taken on a pass/not passed basis. Prerequisites: Limited to summer Cal-in-Sacramento interns. The purpose of this course is to provide Cal-in-Sacramento interns and other interested students with a more detailed understanding of our state government. We will focus on the state legislature and executive branch, exploring both the policy-making process and the politics in Sacramento, which we will learn are quite closely related to public policy.

111A. Politics and the News Media. (4) Three hours of lecture per week. This course’s objective is to describe and analyze the ways in which the news media have become a part of the political system. In order to understand the manner in which news organizations interact with officials, organized groups, and the public focus will be on media influences in areas such as who gets to make policy and the outcome of policy making. (F,SP) Staff

111AC. The Politics of Displacement. (4) Four hours of lecture per week. Antebellum American political history generally follows a routine script in which the purpose of the Revolution was to liberate Americans for self-government and economic and social development. The focus of this course is on the antebellum period and the legacy of coercion and Native American relocation as the consequence of natural forces of immigration and modern social values. In this class, the revolution against the Native American relocation is to be comparative; readings will center around first-person accounts, written by members of the ethnic groups most immediately involved in each of the cultural forms. The theme is that of identity, political as well as culturally: examining how various political commitments about rationality and power, structure and agency, and democracy. It thus promotes an awareness of the way questions about contemporary governance are inextricably linked to philosophical and normative commitments. This course has a required discussion section. (F,SP)

115C. Marxism and Culture. (4) Three hours of lecture and two hours of discussion per week. The purpose of this course is to trace the development of Marxism as a system and political ideology since its inception, focusing particularly on developments in “Communist” or “State Socialist” systems, but also including a brief look at Eurocommunist thought.

116. Special Topics in Political Theory. Three hours of lecture and one to two hours of discussion per week. Prerequisites: One of the following courses 112A or 112B or 113A or 113B. Intensive study of one topic, problem, or intellectual movement in political theory. Scheduling web site for specific course offerings. (F,SP) Staff

118A. Three American Cultures. (4) Course may be repeated for credit with department approval. Three hours of lecture per week. The course will examine differences among three American cultures. The focus of the course is to be comparative, readings will center around first-person accounts, written by members of the ethnic groups most immediately involved in each of the cultural forms. The theme is identity, political as well as culturally: examining how various ethnic groups involved came to form a collective identity for themselves. The three groups studied will vary by instructor. See departmental listings for more specific information. This course satisfies the American Cultures requirement. (F,SP) Staff

Political Theory

112A. History of Political Theory. (4) Three hours of lecture, two hours of discussion, and one hour of conference per week. Major theories from the ancient Greeks to the modern period. Ancient and medieval political thought, including Plato, Aristotle, and St. Augustine. (F,SP)

112B. History of Political Theory. (4) Three hours of lecture, two hours of discussion, and one hour of conference per week. Early modern political thought up to the French Revolution, including Machiavelli, Hobbes, Locke, and Rousseau. (F,SP)

112C. History of Political Theory. (4) Three hours of lecture, two hours of discussion, and one hour of conference per week. Nineteenth and 20th century political thought, including Burke, Utilitarianism, Marx, and contemporary theory. (F,SP)

112D. History of European Political Theory: The 20th Century. (4) Three hours of lecture and one to two hours of discussion per week. This is a survey course that will examine developments in 20th century European Political Theory. It will focus on theorists’ contributions and reactions to various major political and intellectual shifts, including Marxism (as “Western Marxism” and as well advanced “historiographic Marxism”) and postmodernized Soviet communism in its heyday; psychoanalysis; and fascism. (F,SP) Thomas

113A-113B. American Political Theory. (4/4) Three hours of lecture and two hours of discussion/conference per week. Basic problems of political theory as viewed within the context of American history and institutions. (F,SP)

114A. Theories of Governance: Late 20th Century. (4) Three hours of lecture and one hour of discussion per week. What is governance? How should we explain its emergence? What are its implications for public policy and democracy? This course uses debates about contemporary governance to examine four approaches to political science and political theory. The work, Schedules and course requirements, institutions, nationalism, Marxism, and poststructuralism. The course looks at the narrative that each approach provides of the origins and workings of governance since 1979, but also looking at theoretical commitments and questions about rationality and power, structure and agency, and democracy. It thus promotes an awareness of the way questions about contemporary governance are inextricably linked to philosophical and normative commitments. This course has a required discussion section. (F,SP)

115C. Marxism and Culture. (4) Three hours of lecture and two hours of discussion per week. The purpose of this course is to trace the development of Marxism as a system and political ideology since its inception, focusing particularly on developments in “Communist” or “State Socialist” systems, but also including a brief look at Eurocommunist thought.

116. Special Topics in Political Theory. Three hours of lecture and one to two hours of discussion per week. Prerequisites: One of the following courses 112A or 112B or 113A or 113B. Intensive study of one topic, problem, or intellectual movement in political theory. Scheduling web site for specific course offerings. (F,SP) Staff

118A. Three American Cultures. (4) Course may be repeated for credit with department approval. Three hours of lecture per week. The course will examine differences among three American cultures. The focus of the course is to be comparative, readings will center around first-person accounts, written by members of the ethnic groups most immediately involved in each of the cultural forms. The theme is identity, political as well as culturally: examining how various ethnic groups involved came to form a collective identity for themselves. The three groups studied will vary by instructor. See departmental listings for more specific information. This course satisfies the American Cultures requirement. (F,SP) Staff

International Relations

120A. International Relations. (4) Three hours of lecture and one hour of discussion per week. Comparative foreign policy. (F,SP)

120B. Politics of European Integration. (4) Three hours of lecture and one to two hours of discussion per week. The European Union is the world’s most advanced experiment in governance beyond the level of the traditional nation-state. As France, Britain, Germany, Spain, Poland, and the other main member states have pored their sovereignty, they have created new ways of organizing the realities of economic competition, political authority, social cohesion, and cultural identity. Not surprisingly, there are several divisions among social scientists who study Europe. Specialists in comparative politics focus primarily on workings of national political economies, while scholars in international relations devote most of their attention to the construction of supranational institutions. Economists are especially interested in Europe’s international trade regime and currency arrangements. Sociologists and anthropologists have meanwhile focused growing attention to transnational interest groups, religious movements, and cultural identities. This course seeks to bridge the intellectual divide between these different approaches by examining economic, political, and cultural aspects of integration. Readings are drawn primarily from the fields of international relations, comparative politics, and public policy. (F,SP) Ziegler

123. Special Topics in International Relations. Three hours of lecture and one hour of discussion per week. Prerequisites: 120A highly recommended. Formerly 123. See department web site for specific course offerings. (F,SP) Staff

124A. War! (4) Three hours of lecture and one hour of discussion per week. The nature and causes of war; the relationship of politics to war in history; historical varieties of strategic doctrine; the implementing of strategy; the endings of war. (F,SP)

124C. Ethics and Justice in International Affairs. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: pass/fail basis. Three hours of lecture and one to two hours of discussion per week. Should nations intervene in other countries to prevent human rights abuses or famine? On what principles should immigration be based? Should we recognize one, two, or many wealthy states and if so, how large? How much? Who should pay for global environmental damage? Answers to these moral questions depend to a great degree on who we believe we have an obligation to care for or how we define our national interests. The course considers assumptions about rationality and power, structure and agency, and democracy. It thus promotes an awareness of the way questions about contemporary governance are inextricably linked to philosophical and normative commitments. This course has a required discussion section. (F,SP) Staff

125A. International Political Economy. (4) Three hours of lecture and one hour of discussion per week. Economic concepts in the study of international political economy. Political concepts influencing the choice of economic policies. (F,SP) Staff

127A. International Law. (4) Three hours of lecture and up to two hours of discussion per week. This course is an introduction to public international law for students of international relations. The primary purpose of this course is to give students’ understanding of the ways in which international law orders international politics. How and to what extent has it been used in resolving conflicts between nations? How do we arrive at the law? How can one achieve a fair and just system? What is the nature of legal institutions in international law? How is the law made and by whom? How do economic and political stability relate to the law, and on historical episodes that illustrate the issues. Substantive areas include international human rights, international trade law, and international law and the use of force.
128. Chinese Foreign Policy. (4) Three hours of lecture and one hour of discussion per week. This course covers the history and analysis of Chinese foreign policy since the inception of the People’s Republic of China in 1949. Some attention is devoted to pre-1949 Far Eastern international relations but only as a background to the study of the contemporary period. Emphasis is placed on the changing nature of China’s relations, on the domestic determinants of Chinese foreign policy, on the changing nature of China’s relations with her Asian neighbors, and on important substantive issues.

128A. Chinese Foreign Policy. (4) Three hours of lecture and one hour of discussion per week. Chinese foreign policy from the inception of the People’s Republic of China in 1949 to the present. This course aims at providing the student with a sufficient factual base, alternative theoretical approaches and some of the methodological tools useful in studying Chinese foreign policy.

129B. Russia after Communism. (4) Three hours of lecture and one hour of discussion per week. This course presents a broad introduction to contemporary politics and society in Russia. Other countries of the former Soviet Union and Eastern Europe will receive secondary attention. What was Soviet-type socialism and how is its legacy shaping post-Soviet Russia? Where is Russia today? How are the factors that have been known in the West, a new form of authoritarianism, reversion to the old system, or something else? The social movements and political transformations of the Gorbachev era have engendered a new political system. Most of the course is devoted to the post-communist period and current problems of political change and upheaval. Topics to be investigated include the movement from a command economy to capitalism, struggles among emerging social interests, the changing role of the military in society, crime and social disintegration, the rise of nationalism and the search for national identity, civil war, and the role of political institutions. The course is recommended for juniors and seniors but is open to all students. (F,SP)

Empirical Theory and Quantitative Methods

C131A. Applied Econometrics and Public Policy. (4) Three hours of lecture and zero to one hour of discussion/laboratory per week. This course focuses on the sensible application of econometric methods to empirical problems in economics and public policy analysis. It provides background on issues that arise when analyzing non-experimental social science data and a guide for tools that are useful for empirical research. Basic econometric models and an understanding of the types of research designs that can lead to convincing analysis and be comfortable working with large scale data sets. Also listed as Public Policy C142. (F,SP)

C132. Selected Topics in Quantitative Methods. (4) Course may be repeated for credit as topic varies. Three hours of lecture and one to three hours of discussion per week. Prerequisites: ECON 132A. (F,SP)

C135. Game Theory in the Social Sciences. (4) Students will receive no credit for C135 after taking Economics 104. Three hours of lecture and one hour of discussion per week. Formerly 135. A non-technical introduction to game theory. Basic principle, and innovative business organizations are transform- ing the economic and social landscape of the advanced industrial countries. The policy issues associated with this transformation pose fundamental philo- sophical and political questions about how our markets, polity, and society. The means of making and implementing these choices is politics. The nec- essarily global scope of the E-conomy extends the definitions of policy challenges and complex experiences. This course will explore the literature on the political economy of the Internet to determine what policy choices—and hence which political debates— are and will be most important. We also will examine our current understanding of the burgeoning dig- ital economy and its impact on politics, law, and socio-economic relations.

C136A. Theory in Comparative Analysis. (4) Three hours of lecture and one hour of discussion per week. Major themes in comparative analysis. Political systems, culture, authority and other themes in the study of macro-politics. Subject matter will vary with instruc- tor. For details consult departmental announce- ments. (F,SP)

136B. Method in Comparative Analysis. (4) Three hours of lecture and one to three hours of discussion per week. Application of the comparative method in the field of comparative politics. Use of comparison description, hypothesis-testing, and theory construc- tion. Methodological issues that arise in comparing national units and in making comparisons across dif- ferent cultures.

137A. Revolutionary Change. (4) Three hours of lecture and one hour of discussion per week. Theories of revolutionary violence, rebellion, and revolution. Strategies of revolution, terrorism, sources of revolu- tionary action.

137B. Revolutionary Movements. (4) Three hours of lecture and one hour of discussion per week. Ideas as instruments of political action. A comparison of radical movements from the Middle Ages to the present day, emphasizing reactions to the rise of modern capitalism, industrial society, and the post-industrial age.

137C. Democracy and Its Alternatives in The Developing World. (4) Three hours of lecture and one and one-half hours of discussion per week. This course offers a comparative study of the wave of democratization that swept much of Latin America, Southern Europe, East Asia, Africa, Eastern Europe, and the former Soviet Union during the past three decades. The course will analyze the theoretical lit- erature and its impact on regime change in countries emerging from bureaucratic authoritarianism, military rule, personalistic dictatorships, and state socialism. In addition to dealing with democrati- zation, the course will address the reverse process of democratization moving from democratic to more authoritarian regimes, a tendency that has been increasingly evident during the past decade. We will investigate, among other topics: the meaning of democracy and authoritarianism, the factors that facil- itate or hinder democratization, the roles of mass movements, the significance of constitutional arrange- ments, problems of nationalism and ethnic conflict, and the relationship between religious and political regime change. (F,SP)

138A. Democracy, Democracies. (4) Course may be repeated for credit with consent of department. Three hours of lecture and one to three hours of dis- cussion per week. The course deals with issues in normative as well as empirical democratic theory. The first part deals with justifications for democracy as rule of the people versus other political systems. The second part deals with empirical theories about what some countries are democracies and others are not. The third part looks at whether institutional choices make a difference in the consolidation and perfor- mance of democracies. (F,SP)

138D. Governance of the E-conomy. (4) Three hours of lecture and one to three hours of discussion per week. This course will examine international institutions and organizations, and the role of the United States in the evolving world economy. The third part looks at whether institutional choices signal success? Can the failures be avoided? The course will discuss whether globalization is shunt- ing aside national political choice, or whether global- ization is in fact a sequence of national and regional stories played out on a largely spatial scale. The fourth part looks at how economic constraint structures political choice and national response to the global economy. But we will also examine how political developments shape market dynamics and national innovations. We will learn about all sorts of things from the politics of French fashion to why the Japanese make good cars. (F,SP) Yzsmn

139B. Development Politics. (4) Three hours of lecture and one hour of discussion per week. Politics of development in development in development in comparative analysis of the theories and practice of develop- ment in the light of contemporary experience. Political strategies of agrarian, industrial, educational, social, and political movements, and the role of develop- ment in the light of contemporary experience.Political strategies of agrarian, industrial, educational, social, and political movements, and the role of development in the light of contemporary experience. (F,SP)

139C. Selected Issues of Development Politics. (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. See departmental announcements. Topics will vary with instructor.

140. Selected Topics in Comparative Politics. Four hours of lecture and one hour of discussion per week. See department website for specific course offerings. (F,SP)

Area Studies

141C. Politics and Government in Eastern Europe. (4) Three hours of lecture and one hour of discussion per week. Modern politics and government in the states of Eastern Europe and the former Soviet Union. Special attention to the international role of Germany, and the search for national identity, civil war, and the role of political institutions. The course is recommended for juniors and seniors but is open to all students. (F,SP)

142A-142B. Middle East Politics. (4,4) Three hours of lecture and one to three hours of discussion per week. The Middle East in world affairs, international relations and domestic policies of contemporary states.

147H. The Domestic Politics of Postwar Western Europe. (4) Three hours of lecture and one hour of discussion per week. This course examines the different ways in which the leading nations of Western Europe—France, Germany, and to a lesser extent, Italy and Sweden—have confronted common problems in the postwar period.

148A-148B. Latin American Politics. (4) Three hours of lecture and one to three hours of discussion per week. Focus on Latin American countries. Characteristics of political processes in Latin America; problems of political development and modernization and political change. Comparative study of political systems, institutions, staffing, and operation of legal institutions. (F,SP)

149. Special Topics in Area Studies. Three hours of lecture and one hour of discussion per week. See department web site for specific course offerings. (F,SP) Staff

Public Law and Jurisprudence

150. The American Legal System. (4) Students who have taken 150A during the 1983-84 or 1984-85 academic year will receive no credit for 150. Three hours of lecture and discussion per week. The nature of the American legal system; the interrelations of judges, lawyers, police, political officials, bureaucrats, press, and general public; the political and social aspects of the legal process. (F,SP)

152. Selected Topics in Public Law. Four hours of lecture and two hours of discussion per week. Pre-requisites: 150, 157A, or equivalent. In contemporary democracies, law, courts, and other legal institutions (law enforcement agencies, regulatory bodies, administrative agencies) play an ever-increasing role in the government of society. This course will examine the political science, legal and sociological literature on topics related to the design, formulation of law, and the struggle for political power. See department web site for specific offerings. (F,SP) Staff

157A-157B. Constitutional Law of the United States. (4) Three to four hours of lecture and one to two hours of discussion per week. Prerequisites: 150. Exploration of the development, establishment, practice, and consequences of legal decisions and their role in influencing, shaping, and constraining the American political system. A: Judicial Review and the Limits to National Power. B: Civil Rights and Civil Liberties. (F,SP) Staff

Political Behavior

161. Public Opinion, Voting and Participation. (4) Three hours of lecture and one hour of discussion per week. The nature of public opinion, attitude formation, electoral turnout, and choice; political cleavages; the role of the mass public. (F,SP)

164A. Political Psychology and Involvement. (4) Three hours of lecture and one hour of discussion per week. Personality factors in political behavior; psychological roots of decision-making; leadership; psychological sources of political influence; conflict theory. (F,SP)

167. Racial and Ethnic Politics in the New American Century. (4) Three hours of lecture and one hour of discussion per week. The goal of this course is to explore, discuss, and better understand the dynamics of the legislation of racial identity, attributions of racial difference, and persistent debates about racism, identity, rights, representation, citizenship, conflict, and coalitions. A repeated theme of this course is the question whether racial order and inequality are essential to, or an exception from, the liberal democracy in the U.S. This is a lecture course with intensive readings, written assignments, and in-class discussion. (F,SP) Staff

Sub-National Government and Politics

171. California Politics. (4) Three hours of lecture and one hour of discussion per week. An inquiry into the political environment of the state—historical, economic, geographic, and social; its political institutions—government, parties, interest groups, and citizens; and the policies resulting from the interaction of environment and government. (F,SP)

173S. Political Economy of the California Crisis. (4) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. Pre-requisites: Consent of instructor. This course examines the state of California's political economy. An analytical framework is developed that encompasses the secular and cyclical variability of California's income, expenditure, and revenue levels. California's economic growth and political development since 1875 will be analyzed. Specific topics covered include the Edmund G. (Pat) Brown era; Proposition 13 and the Ronald Reagan governorship; California's demographic transformation; challenges of economic development; and federal discretionary representation; the 2003 gubernatorial recall and the 2002-04 fiscal crisis. Course is part of the University of California Center Sacramento Program and is located in Sacramento. (F,SP) Dymock

176. The Unseen America. (4) Three hours of seminar per week. Must be taken on a passed/not passed basis. Social science methods and philosophies; on-site observation of "unseen" parts of local community; war veterans, elderly, alcoholics, prison personnel, factory workers, et al. Frequent field trips led by undergraduate student coordinators. Classroom discussions also directed by undergraduate student coordinators under the direction of the sponsoring faculty.

179. Undergraduate Colloquium on Political Science. (1) Course may be repeated for credit. One hour of lecture per week. Must be taken on a passed/not passed basis. Political issues facing the state of California, the United States, or the international community.

Public Organization

181. Public Organization and Administration. (4) Three hours of lecture and one hour of discussion per week. The methods used to manage the power of the bureaucracy in the American political system. An introduction to theories of organizational behavior. The organizational culture and power base upon the creation and distribution of public benefits.

183. Administrative Behavior. (4) Three hours of lecture and one hour of discussion per week. The dynamics of public policy formulation within bureaucratic organizations; the influence upon public organizations of the legislative pressure groups; patterns of conflict within public organizations.

186. Public Problems. (4) Three hours of lecture and one and one-half hours of discussion per week. Homelessness, global warming, corruption, bankruptcy pension systems, educational inequity: the list of intractable public problems seems to grow every year. This
course explores the way societies try to address and solve difficult and seemingly intractable public problems. Can we attribute success or failure to institutions and their capacity to solve problems? Are problems difficult to solve because they are complex or because of a failure of political will? What are the characteristics of organizations or communities that are able to frame and how are they used to mobilize constituencies? The course draws on literature in public administration, public policy studies, and democratic theory to better understand some of the major social, political, environmental, and economic problems of our contemporary world. (F,SP) Ansell

187C. Seminar: Technology and Politics. (4) Three hours of lecture and one hour of discussion per week. The relationship of technology to social/political change, and of democratic governance of technical developments, the bases for technological dissent, roots and promises of technology assessment in the congressional setting, and alerts for the future in the development of public policy.

189. Selected Topics in Public Organization and Policy. (4) Course may be repeated for credit with consent of department. Three hours of lecture and one hour of discussion per week. See departmental announcements for topics. (F,SP)

Special Studies

H190A. Honors Seminar. (4) Two hours of seminar per week plus individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and major declared political science senior with a 3.5 GPA in the major and a 3.3 GPA overall. Eligible students must have at least two letter-graded upper division Political Science courses at Berkeley. C190A is the second of a two-semester research seminar designed to provide support and structure to political science seniors writing an honors thesis. To receive department honors, students must maintain a B+ or better in H190A with a B+ or better. For additional details, please consult the Undergraduate Advising Office or polisci.berkeley.edu. (F,SP) Staff

H190B. Honors Seminar. (4) Two hours of seminar per week plus individual conferences. Prerequisites: Consent of instructor. Must be a declared political science senior with a 3.5 GPA in the major and a 3.3 GPA overall. Eligible students must have at least two letter-graded upper division Political Science courses at Berkeley. C190B is the second of a two-semester research seminar designed to provide support and structure to political science seniors writing an honors thesis. To receive department honors, students must maintain a B+ or better in H190B with a B+ or better. For additional details, please consult the Undergraduate Advising Office or polisci.berkeley.edu. (F,SP) Staff

191. Junior Seminar. (4) Students are allowed to take one seminar per semester while in junior status. Three to four hours of lecture per week. Prerequisites: Open to Political Science majors only. The seminars will be led by ladder-rank faculty members in the subfields of American Politics, International Relations, and Comparative Politics. These intense writing seminars will focus on the research area of the faculty member teaching the course. The seminars will provide an opportunity for students to have direct intellectual interactions with faculty members while also giving the students an understanding of faculty research. Staff

H195A-H195B. Senior Honors Thesis. (4/4) Hours to be arranged. A: Must be taken on a passed/not passed basis. B: Must be taken for a letter grade. Prerequisites: Senior candidate, instructor consent, independent research and thesis. Satisfies thesis requirement for honors candidates. Both semesters must be taken and completed with a final grade of B+ or better in order for departmental and external honors to be awarded. Application and details through the Undergraduate office. (F,SP)

196. Special Research Project. (1-4) Course may be repeated for credit. Regular individual meetings with faculty sponsor. Prerequisites: Consent of faculty sponsor and department chairman. Independent study of an advanced topic resulting in a substantial research paper. (F,SP)

196S. UC Sacramento Internship and Research Seminar. (9-13) Course may be repeated for credit with consent of instructor. The seminars will be based on the number of hours of the internship. Three hours of seminar and 24 to 36 hours of internship per week. Prerequisites: Consent of instructor. This seminar will introduce policy analysis and analysis as it relates to the political state to maximize students’ internship experience. The internship component of the course will provide students with a challenging opportunity to engage in experiential learning in some aspect of the political, policy-making, or governmental processes in California’s state capital. This course will help students determine their interest in the public policy and political process in California and to develop analytical writing skills to produce a 25-30 page research paper developing and reflecting on relevant elements of the political psychology of California and to develop analytical writing skills to produce a substantial research paper. (F,SP) Dymski

C196W. Special Field Research. (10.5) Course may be repeated for a maximum of 12 units. 240-300 hours of work per semester plus regular meetings with the faculty supervisor. Prerequisites: Formerly H196W. Consent of instructor. Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty advisor. Also listed as Gender and Women’s Studies C196W, History of Art C196W, Undergrad Interdisciplinary Studies C196W, History C196W, Political Economy C196W, Sociol C196W, and Media Studies C196W.

197. Field Study in Political Science. (1-3) By arrangement with faculty. Must be taken on a passed/not passed basis. Prerequisites: Consent of faculty sponsor and department chair. Supervised experience relevant to specific aspects of political science in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F,SP)

198. Directed Group Study for Undergraduates. (1-8) Course may be repeated for credit. By arrangement with faculty. Students must produce a minimum of 10 pages of written work for each unit of credit earned. Must be taken on a passed/not passed basis. Submission of a study proposal by faculty sponsor for the department chair in advance of the semester to be offered. Group studies of selected topics which vary from year to year.

199. Supervised Independent Study and Research for Undergraduates. (1-4) Course may be repeated for credit. By arrangement with faculty. Must be taken on a passed/not passed basis. Prerequisites: Open only to juniors and seniors. Enrollment is restricted by departmental regulation. (F,SP)

Graduate Courses

Properly qualified undergraduates may be admitted to graduate courses or seminars with special permission of the instructor.

Comparative Analysis

200. Major Themes in Comparative Analysis. (4) Three hours of seminar per week. Subject and texts to be studied vary with instructor. See departmental announcements.

201A-201B. Comparative Analysis of Industrial Democracies. (4) Three hours of seminar per week. The comparative study of politics in Western societies. The place of parties, political structures, interest groups, and economic institutions. The relationship between domestic political developments and the international system. The effect of economic development on political change. The effect of labor politics on national politics.

201D. Governance of the E-conomy. (4) Three hours of lecture per week. New digital technologies, changing market structures, and innovative business organizations are transforming the social and political landscape of the advanced industrial countries. The policy issues associated with this transformation pose fundamental philosophical and political questions of how to reorganize our markets, and the means of making and implementing these choices is politics. The necessarily global scope of the E-conomy extends the political and policy challenges to the international arena. This course will explore the political economy of the Internet to determine what policy choices—hence which political debates—are and will be most important. We also will examine our economic systems and their global political economy and its impact on politics, law, and socioeconomic relations.

202A. Theories of Development and Political Change. (4) Three hours of seminar per week. Issues of social organization and political change. Theories of progress, development, modernization and dependence.

204. Political Leadership. (4) Three hours of seminar per week. Graduate seminar. Open to students from all disciplines and colleges who are interested in the discipline of political science. All exams for the seminar will be written and will focus on classroom management. The seminars will covering the history, society, and economy of the United States and the world, in order to develop a critical understanding of political leadership and to delve into literature on agency versus structure ("what difference does leadership make?"). It examines the ways in which leaders typically gain their authority, the roles of resources on which they draw for getting their decisions promulgated and implemented, the strategies they employ for building and maintaining their authority, and the criteria employed by scholars for evaluating leaders' effectiveness. Students will read and discuss case studies of leaders of politics, public and private organizations, and social movements. Breslauer

206. Authoritarianism. (4) Three hours of seminar per week. This seminar explores the characteristics and dynamics of non-democratic regimes: how and why they come about, what sustains them, why some people resist and others do not, and how and why they decline and fail. While there are no formal methodological prerequisites for this course, we will encounter a variety of approaches, including formal, large-N statistical, small-N qualitative, narrative, and literary. Course discussions will revolve around the main questions: What are the resources on which they draw for getting their decisions promulgated and implemented, the strategies they employ for building and maintaining their authority, and the criteria employed by scholars for evaluating leaders' effectiveness. Students will read and discuss case studies of leaders of politics, public and private organizations, and social movements. Breslauer

209A. Comparative Political Economy. (4) Four hours of seminar per week. This seminar provides an introduction to the major debates in comparative political economy. Although the empirical focus is on the affluent democracies, many of the debates and issues analyzed have implications for other regions. The course is divided into two main parts. The first part introduces economic perspectives on political economy, such as Friedman, Marx, Weber, and Polanyi. The second part of the course is more topical. It probes a number of examples of economic development, crises, and change, with an eye to assessing alternative theoretical perspectives. (F,SP)

209B. Post Fordism: New Patterns of Production, Time, and Meaning in Contemporary Capitalism. (4) Three to four hours of seminar per week. With changes in technology, the internationalization of production, and the massive increases in trans-border transactions of all kinds, it has been argued that we live and work in an era of substantively different capitalism. Were this true, it has deep implications for politics. Post-Fordist political economy explores the validity of this claim of a "new capitalism" through a variety of materials, starting with the question of whether "Fordism" ever existed, moving on to the question of whether "Post-Fordism" exists and ending with a variety of ethnographic studies that show how global production chains shape culture, gender, and hierarchy/power. (F,SP) Chaundry
210. Selected Topics in Comparative Politics. (4) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. Topic will vary with instructor.

Political Theory

212A. History of Political Thought: Ancient and Medieval. (4) Three to four hours of seminar per week. A weekly seminar on political thought from the ancient Greeks to the Renaissance. Ancient and medieval political theorists, typically including Plato, Aristotle, St. Augustine, and Aquinas. (F,SP) Stimson

212B. History of Political Thought: Early Modern (Renaissance to French Revolution). (4) Three to four hours of seminar per week. A weekly seminar on political thought from the Renaissance to the French Revolution. Early modern political theorists, typically including Machiavelli, Hobbes, Locke, Rousseau, and Burke. (F,SP) Brown

212C. History of Political Thought: Modern (French Revolution through World War II). (4) Three to four hours of seminar per week. A weekly seminar on political thought in the 19th and early 20th centuries. Modern political theorists, typically including Tocqueville, Hegel, Marx, Mill, Nietzsche, and Weber. (F,SP) Brown

213. Methodological Topics in the History of Political Thought. (4) Three to four hours of seminar per week. A seminar on methodological topics in the 19th and early 20th centuries. Modern political theorists, typically including Tocqueville, Hegel, Marx, Mill, Nietzsche, and Weber. (F,SP) Bevir

214. Themes in Western Political Theory. (4) Course may be repeated for credit. Three hours of seminar per week. Themes to be specified by instructor.

215A. Approaches to Contemporary Political Theory. (4) Three to four hours of seminar per week. A weekly seminar on contemporary approaches to political theory. (F,SP) Brown

215B. Topics to Contemporary Political Theory. (4) Three to four hours of seminar per week. A weekly seminar on contemporary topics in political theory. (F,SP) Bevir

216. Symposium in Contemporary Political Theory. (4) Three to four hours of seminar per week. An intensive examination of a contemporary theorist, debate, or issue. (F,SP) Bevir

International Relations

220A. Theories of International Relations. (4) Three hours of seminar per week. Prerequisites: Previous work in international relations. Origin, application and utility of major paradigms in international relations. Relation of various strands of political and social theory to international relations.

223. Selected Topics in International Relations. (4) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. Topic will vary with instructor.

224. Sociological Traditions in International Relations. (4) Three to four hours of lecture per week. This seminar traces the development of the constructivist program in international relations in order to better understand its elements, assumptions, and methods and apply those to current issues. We start by uncovering the roots of constructivism in sociology and philosophy and examine structuration theory, the English School, world systems theory, regime theory, and sociological institutionalism. The second part of this course focuses on the constructivist agenda in international relations, its boundaries and its critics. In the last part of the course we examine current research in IR that draws on sociological methods, including work on the role of norms, epistemic communities, transnational civil society, and the origins of the state. (F,SP) Hassner

224A. International Security. (4) Two to four hours of lecture per week. The goal of this course is to introduce advanced political science graduate students to current research on international security and to prepare these students for conducting dissertation research in their own areas of interest within this field. This course is designed for advanced political science graduate students preparing to do dissertation research. Its orientation is theoretical rather than empirical, and it is both reading and research. (F,SP) Staff

224B. Sociological Traditions in International Relations. (4) Three to four hours of seminar per week. This seminar traces the development of the constructivist program in international relations in order to better understand its elements, assumptions, and methods and apply those to current issues. We start by uncovering the roots of constructivism in sociology and philosophy and examine structuration theory, the English School, world systems theory, regime theory, and sociological institutionalism. The second part of this course focuses on the constructivist agenda in international relations, its boundaries and its critics. In the last part of the course we examine current research in IR that draws on sociological methods, including work on the role of norms, epistemic communities, transnational civil society, and the origins of the state. (F,SP) Hassner

225A. The Empirical Analysis of International Security. (4) Four hours of lecture per week. This course offers an introduction to the empirical analysis of International Security. The primary goals are: (1) to acquaint students with the empirical knowledge in the field of International Security that has been produced with quantitative approaches and (2) to help students develop and hone their skills in empirical analysis. Therefore, particular emphasis will be given on how to go beyond being “consumers” of empirical research and how to become “producers” of novel empirical research. (F,SP) Staff

225B. International Political Economy. (4) Three hours of seminar per week. Prerequisites: Introduction to International Relations. The course will focus on the role of economic institutions in international politics. It will introduce students to the foundation of International Political Economy theory and the most important concepts and controversies. (F,SP) Brown

226A. International Political Economy. (4) Three hours of seminar per week. Prerequisites: Introduction to International Relations. The course will focus on the role of economic institutions in international politics. It will introduce students to the foundation of International Political Economy theory and the most important concepts and controversies. (F,SP) Brown

230. Essential Methodological Tools. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Permission of instructor. (F,SP) Staff

231A. Quantitative Analysis in Political Research. (4) Four hours of seminar and one hour of discussion per week. Prerequisites: 132A-132B or Statistics 130A. Introductory course in the empirical analysis of political data. This course offers an introduction to the empirical analysis of political data. Topics covered include functions, limits, continuity, calculus, optimization, probability and statistics, and linear algebra. Entire courses are often devoted to each of these topics (e.g., Math 1A-1B, 53, 54; Stat 101, 134, 135), and this course clearly cannot provide an equally comprehensive treatment. Rather, the class selectively focuses on the most important concepts and topics that are most commonly used in applied formal and quantitative work in political science. The goal of the class is to ensure that students have a sufficiently firm understanding of the analytical tools that make up the foundation that subsequent methods course can build on. (F,SP) Staff

231B. Quantitative Analysis in Political Research. (4) Three hours of seminar per week. Prerequisites: 231A or equivalent. Topics from multiple-equation causal modeling and introductory econometrics, with special emphasis on procedures appropriate for political data, including survey data.

232A-232B. Formal Models of Political Science. (4,4) Three hours of seminar per week. Formerly 232. A. Mathematical models of politics with applications to political learning, bargaining, and democratic theory. B. Game theory, collective choice theory, and mathematical psychology.

B. This course emphasizes the application of the formal analytic tools to current or significant research in political science. Powell

233. Psychometric and Econometric Methods. (4) Three hours of seminar per week. Most political science courses suffer from the measurement and modeling problems of theoretical constructs contain substantial amounts of error and the processes generating the data involve reciprocal causation (“simultaneity”) or selection effects. In addition, political scientists often only have nominal or ordinal measures for their concepts. This course explores methods for correcting these problems through careful statistical modeling.

235. Introduction to Research Methods. (4) Three hours of seminar per week. Overview of methods of political research. Theories, concepts, variables, hypotheses, Research design, quantitative and qualitative methodology. Basic data collection techniques. Approaches to data analysis. Provides an overview of different statistical techniques but does not teach statistics per se.

236. The Statistics of Causal Inference in the Social Sciences. (4) Three to four hours of lecture per week. Prerequisites: One multivariate regression course. Approaches to causal inference using the potential outcomes framework. Covers observational studies with and without ignorable treatment assignment, randomized experiments with and without non-compliance, instrumental variables, regression discontinuity, statistical knowledge in social inference. Applications are drawn from a variety of fields including political science, economics, sociology, public health, and medicine. (F,SP) Sekhon

239. Selected Topics in Methodology. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Topic will vary with instructor. Departmental announcements. Topic will vary with instructor.

Area Studies

241D. Politics in the Post-Communist World. (4) Two hours of seminar per week. Reading and discussion seminar for graduate students. Comparative analysis of divergent paths of development among the almost 30 new states that comprised the Soviet Union and Eastern Europe. Focus on changes in politics, economics, social stratification, culture, and international relations. Discussions of competing explanations for the observed outcomes frameworks, and their implications for theories of development, modernization, and international relations.

242. Topics in Middle East Politics. (4) Three hours of seminar per week. Prerequisites: 142A or 142B or consent of instructor. An advanced seminar, designed to encourage synthesis of empirical research and theoretical reflection. Focused each year on a specific dimension of Middle East politics (state formation, local politics, sectarianism, Islamic political thought, social movements). Seminar paper and class presentations are required.

243A. International Relations in East Asia. (4) Three hours of seminar per week. This reading seminar will focus on dynamic interactions of four major powers—the United States, former Soviet Union, China, and Japan—which are also global powers—and two minor actors—South and North Korea—from bilateral, regional, and global perspectives. Lee

243B. Political Authority and Economic Exchange in East Asia. (4) Three hours of seminar per week. This will compare and contrast how exchange relations are combined to regulate political and economic activities in China, Taiwan, South Korea, North Korea, and Japan. The course will examine theoretical

B prefix=language course for business majors
C prefix=consent required course
H prefix=honors course
R prefix=course satisfies R&Q requirement
AC suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
243C. Japanese Politics. (4) Three hours of seminar per week. Prerequisites: Graduate student. This seminar on modern Japanese political and critical review major English and Japanese social science literature covering all major political events in modern Korea. Korea’s history has been filled with turbulent but unique experiences such as modernization, experiments with Japanese colonialism, tragic, externally imposed division and civil war; drastically divergent national-building experiences between South and North; and the formidable task of eventually unifying a divided country. These qualities have made Korea a fascinating social science laboratory in which questions crucial to many urgent contemporary theoretical debates can be explored. This class will examine Korea’s experiences from the perspective of various social science theories, and will encompass a comparative consideration of China and Japan as well as South and North Korea. This class will make an extra effort to look at the extent to which they identify cultural continuity and discontinuity in the modern experiences of the two Koreas. (F,SP) Staff

244A. Analysis of Contemporary China. (4) Three hours of seminar per week. This is the first in a two-semester sequence designed to provide graduate students with a basic grounding in the politics of contemporary China. The focus will be on wide reading and comprehensive of the available analytical literature; its sequel will be devoted to integrating the above mentioned primary source research materials. There are no prerequisites, though undergraduate coursework in Chinese politics and/or some acquaintance with the Chinese language would be useful.

244B. Analysis of Contemporary China. (4) Three hours of seminar per week. This second semester concentrates on the acquisition of bibliographical mastery of primary sources and the application research skills. The seminar is chronologically divided into three sections: (1) two weeks on the problems of conceptualization and methodology; (2) four weeks on reading and analyzing primary materials from the recent period of China; and (3) a final period of oral reports on student research topics.

244C. Approaches to Chinese Politics. (4) Two hours of seminar per week with an additional hour to be arranged with instructor. This course has three main objectives: (1) to expose students to debates in the study of Chinese politics; (2) to consider how research on contemporary China both draws from and informs political science; and (3) to explore characterizations of the Chinese state and state-society relations. Emphasis on questions such as: What can we learn by examining Chinese culture and institutions? Do concepts such as fragmented authoritarianism, neotraditionalism, state “reach,” civil society, and corporatism produce insights into the structure and dynamics of Chinese politics?

244D. Collective Action in China. (4) Two hours of seminar per week with an additional hour to be arranged with instructor. This course will explore contentious politics in the People’s Republic of China. Special attention will be given to protest against labor exploitation, migrant workers, and severe environmental degradation. How do concepts drawn from social movement theory help us understand contemporary challenges? How do analyses of the consequences of protest for regime stability and the development of a more complete citizenship?

244E. The Political Economy of China. (4) Three hours of seminar per week. This course will examine the interactions between politics and the economy in contemporary China. How has China achieved rapid economic growth when basic market institutions are missing or deeply corrupted? How have China’s leaders managed to keep economic development from leading to democratization? Does China’s experience hold lessons for other developing countries? (F,SP) Lorentzen

245A. South Asian Politics. (4) Three hours of seminar per week. Major themes of politics and international relations in India, Pakistan, Burma and the mountain kingdoms.

245C. Comparative Politics in Asia. (4) Three hours of seminar per week. This course, which has focused heavily on cross-country comparisons of post-1975 politics, has tended to neglect Asia, the most economically vital region of the globe, while Asian studies has been based fundamentally on an area studies approach to case studies. This seminar will attempt to look at Asian politics from a comparative perspective. Course requirements focus on intensive and extensive reading, as indicated by a series of brief comparative review-essays and lively class discussions. No formal course prerequisites. (F,SP) Staff

246. African Politics. (4) Three hours of seminar per week. Politics of Sub-Saharan Africa; relations of state and society in the context of weak states; state building; societal pluralism; the political role of ethnicity; crisis states and proto-national states; ethnic states; oppression and rearticulation; conflict and class formation; political order and development; modernization and equity; and interstate conflict and international order.

246B. Ethnic Politics. (4) Four hours of seminar per week. This graduate seminar is designed to introduce students to the comparative study of ethnic politics. It provides an overview of theoretical questions and methodological issues in three major ethnic politics; the conceptualization and measurement of ethnicity; the sources of ethnic mobilization and cleavage choice; the consequences of ethnic mobilization for democratization and democracy; the impact of ethnicity on redistributive politics; and the relationship between ethnicity and patterns of violence ranging from urban riots to civil wars. Readings for each topic are drawn from various political science literatures in the social sciences, including Eastern Europe, South Asia, and Sub-Saharan Africa. The purpose of the course is to provide graduate students with a basis for undertaking their own original research on questions relating to ethnic politics. It should enable them to critically engage recent scholarship, understanding which theories have yet to be adequately tested and which theoretically interesting questions have yet to be asked. (F,SP)

247A-247B. Western European Politics. (4,4) Three hours of seminar per week. Major themes of politics and international relations of Western Europe.

247C. German Politics. (4) Three hours of seminar per week. Prerequisites: Consent of instructor. The seminar provides a general overview of modern German political development in the context of Central European history, and detailed analyses of selected topics.

247G. The Comparative Politics of the Welfare State. (4) Three hours of seminar per week. This course analyzes the politics of social protection in Western Europe and the United States. After describing different national welfare regimes, we turn to contemporary challenges, notably globalization, persistent poverty, and changes in family forms and gender roles. We also look at the politics of welfare retenchment and adjustment, paying particular attention to the prospects for progressive social policy. Must reform inevitably scale back protections for the weak and vulnerable, or can equity be safeguarded while promoting efficiency? (F,SP) Levy

248A. Latin American Politics. (4) Either part of the 248A-248B sequence may be taken separately for a total of credit. The course explores different analytical approaches to Latin American politics, focusing both on major concepts (clientelism, corporatism, the state, legitimacy, nationalism) and different explanatory approaches (focusing on factors such as dependency and imperialism, internal social order and economic change, political structure and institutions and political culture).

249. Special Topics in Area Studies. Four hours of lecture per week. See department web site for specific course offerings. (F,SP) Staff

Public Law and Jurisprudence

252. Legal Theory and Institutions. (4) Three hours of seminar per week. The organization and behavior of governmental officials, with particular reference to American courts and administrative agencies. Institutional responses to problems of legality, authority, policy choice, and the organization of enforcement and decision-making processes. Readings include empirical studies, judicial opinions, jurisprudential writings and organization theory.

257. Constitutional Law. (4) Three hours of seminar per week. Fundamental principles of constitutional law, leading cases, judicial decisions affecting the liberties, rights, duties and procedures of governmental officers and agencies, causes and consequences of legal decision, judicial behavior.

259. Selected Topics in Public law. (4) Course may be repeated for credit as topics vary. Three hours of seminar per week. Prerequisites: Consent of instructor. See departmental announcements. Topic will vary with instructor.

Political Behavior

261. Political Behavior. (4) Three hours of seminar per week. A comprehensive review of the major topics in political behavior through intensive examination of the theories, findings, and proceedings of the most significant studies in the field.

262. Voting Behavior and Public Opinion. (4) Three hours of seminar per week. Examination of the basic literature on American voting behavior, public opinion and student research on individually selected topics in this field.

269. Selected Topics in Political Behavior. (4) Course may be repeated for credit as topics vary. Three hours of seminar per week. Prerequisites: Consent of instructor. See departmental announcements. Topic will vary with instructor.

American Government and Politics

271A-271B. American Government. (4,4) Three hours of seminar per week. Credit and grade to be awarded on completion of sequence. The principal topics in American national politics, including public opinion, elections, parties, interest groups, Congress, the presidency, the bureaucracy, and policy information.

272-272A. National Policy Making. (4,4) Three hours of seminar per week. Credit and grade to be awarded on completion of sequence. Formerly 272A. National policy-making processes, concentration on congress, the Presidency, and interactions among policy-making institutions.

274. American Political Development. (4) Three hours of seminar per week. This course will consider several broad themes in American political development. The objective is to extract the central conditions, processes, and controversies that scholars have found running through American political development and try to come to terms with possible relations among them.

276. Race, Immigration and Identity in United States Politics. (4) Course may be repeated for credit as topics vary. Three hours of seminar per week. The goal of this course is to explore, discuss, and better understand the relationship between perceptions of racial identity, attributions of racial difference, and policies, broadly defined. It focuses on recent and contemporaneous intersections of race, immigration, and identity politics in the U.S. While much of the readings come from quantitative studies of political behavior, students are expected to grapple enthusiastically with parallel debates in philosophy, psychology, sociology, economics, and history. (F,SP) Lee, Taeku
277. Political Regulation. (4) Three hours of seminar per week. This course looks at political regulation and reform issues from both empirical and normative perspectives. Prerequisites: campaign finance reform, lobbying regulations, bribery, voting franchise restrictions, redistricting, term limitations, direct democracy, political fairness, and the design of electoral institutions.

279. Selected Topics in American Government. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. See departmental announcements. Topic will vary with instructor.

Public Organization Administration and Policy

280A. Public Organization Theory. (4) Three hours of seminar per week. A survey of the literature of organization and management theory, emphasizing the major writers and distinctive contributions of various disciplines.

280B. Comparative Administration. (4) Three hours of seminar per week. A comparative analysis of the structures and processes which are used to control public organizations. Course explores selected political systems and the effects of those controls on the character of administrative performance.

280C. Politics and Organization. (4) Three hours of seminar per week. The process of public policy formulation, governmental planning and programming, and the social changes in public organizations. Open to repeated credit for students.

284. Strategies of Contemporary Governance. (4) Two to three hours of seminar per week. This course investigates the extent to which these new strategies succeed in making the governance process more efficient, accountable, effective, representational, and policy relevant. Attention to the civic role of individuals and communities.

285. Comparative Administration. (4) Three hours of seminar per week. The process of public policy formulation, governmental planning and programming, and the social changes in public organizations. Open to repeated credit for students.

286. Policy Formulation. (4) Two to three hours of seminar per week. Appropriate works-in-progress include (but are not limited to): a paper in preparation for submission to a journal; a dissertation prospectus (including early drafts); a dissertation chapter, or a job market paper. Anyone working on international politics, political behavior, public law, or public administration is welcome. (F,SP) Schickler

291R. Research Workshop in International Relations. Course may be repeated for credit. Two to three hours of seminar-research development. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate student (second year or above). A two to three hour research seminar for graduate students. Open only to graduate students.

292. Directed Advanced Study. (2-12) Course may be repeated for credit. By arrangement with faculty. Prerequisites: Consent of instructor and graduate standing. Open only to graduate students. May be taken on a satisfactory/unsatisfactory basis. Open only to qualified first-year graduate students working toward the M.A. degree or superior second-year graduate students.

293. Individual Study for Doctoral Students. (4-12) Course may be repeated for credit. By arrangement with the major field adviser. Open only to qualified first-year graduate students. May be taken on a satisfactory/unsatisfactory basis. Open only to qualified first-year graduate students working toward the M.A. degree or superior second-year graduate students.

Professional Courses

301. Graduate Student Instructor Training Seminar. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Course may be repeated for credit. Two to three hours of directed group study per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate student standing (second year or above). A forum for the presentation and discussion of research in progress by graduate students. Two units of credit, a student must make at least one presentation of work in progress and serve as a discussant for another student's presentation. To receive one unit of credit, a student must regularly attend class and participate in discussion, but will not be required to make a presentation. Appropriate works in progress include (but are not limited to): a paper in preparation for submission to a journal; a dissertation prospectus (including early drafts); a dissertation chapter, or a job market paper. Anyone working on international politics, political behavior, public law, or public administration is welcome. (F,SP) Schickler

291R. Research Workshop in International Relations. Course may be repeated for credit. Two to three hours of seminar-research development. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate student (second year or above). A two to three hour research seminar for graduate students. Open only to graduate students.

292. Directed Advanced Study. (2-12) Course may be repeated for credit. By arrangement with faculty. Prerequisites: Consent of instructor and graduate standing. Open only to graduate students. May be taken on a satisfactory/unsatisfactory basis. Open only to qualified first-year graduate students working toward the M.A. degree or superior second-year graduate students.

293. Individual Study for Doctoral Students. (4-12) Course may be repeated for credit. By arrangement with the major field adviser. Open only to qualified first-year graduate students. May be taken on a satisfactory/unsatisfactory basis. Open only to qualified first-year graduate students working toward the M.A. degree or superior second-year graduate students.
students who are interested in the major often have been exposed to introductory courses with different emphases than are present at Berkeley—for example, those with strong orientation for counseling rather than basic science—prospective majors are strongly urged to examine closely our upper division course offerings to see if they are consonant with their interests in psychology.

The Major Program

The major serves three purposes:

1. For the liberal arts student, the study of psychology provides an avenue for increased self-understanding and insight into the behavior of others. The psychology major is one of the best ways to approach the major themes of intellectual history of the last hundred-plus years.

2. For students preparing for training in such professions as medicine, law, education, and business, psychology provides important basic knowledge and principles.

3. For students who plan on pursuing graduate work in psychology, the undergraduate major seeks to establish a sound foundation of research principles and knowledge of a variety of content areas.

Lower Division Requirements

Admission to the Major. All students who apply to the major and meet the following criteria are guaranteed admission: (1) complete all seven prerequisite courses; (2) have a 3.2 GPA in prerequisite courses; (3) submit the application to the department by the posted deadline. If any of the above criteria are not met, students may apply for admission to the major; however, admission to the major is not guaranteed. Applications will be processed once all prerequisite courses are completed and final grades posted.

Prerequisite Courses (7 total courses):

Psychology: Psychology 1 (AP Psychology with a score of 4 or 5 will satisfy this prerequisite).

Biology: Two courses from Molecular and Cell Biology 101, 102, 105, 110; Biological Sciences 1A, 1B, 11; Integrative Biology 31 (AP Biology with a score of 4 or 5 will satisfy one of the biological sciences prerequisites).

Social Science: Two courses from Anthropology 3 or AEC; Sociology 3 or AEC; Linguistics 5; Political Science 1, 2, or 4; Note: Each of the two courses must be from different departments. (AP exams with a score of 4 or 5 will satisfy one of these prerequisites, e.g., AP U.S. Government.)

Quantitative: One course from Statistics 2, 20, or 21; Math 54 or 55 (AP Statistics with a score of 4 or 5 will satisfy this prerequisite).

Upper Division Requirements (8 total courses):

Research Design and Methods: Psychology 101. (We strongly recommend that this course be taken as soon as possible once a student is admitted to the major.)

Three Decade Courses: Select three courses from Psychology 110, 120, 130, 140, 150, 160, and 180.

Four Elective Courses: Select any four upper-division psychology courses numbered 104-182—and, with approval, Psychology 192. (Psychology 192 is reserved for new courses and may be taken multiple times, assuming different courses. These courses apply to upper-division electives.) Note: Psychology 194, 195, 197, 198, and 199 can not be counted as electives.

Breadth: The seven upper-division courses other than 101 (i.e., three decade, four elective) must include one course from each of the four sub-areas represented in the department organization: Cognitive, Brain, and Behavior (110-129); Clinical (130-139); Developmental (140-149); and Social/Personality (150-169, 180).

Note: All courses (both prerequisites and upper division) must be taken for a letter grade.

Honors Program. Admission to the honors program is limited to senior psychology majors who have a 3.5 GPA in their overall University work as well as in the major. Students complete Psychology H195A and H195B (Honors Thesis) under the supervision of a faculty member. Honors students must fulfill a special program requirement to begin this process well before their senior year. Honors students are encouraged to take Psychology H194A and H194B (Honors Seminar). Following the undergraduate degree, the number of qualified applicants usually greatly exceeds the number admitted. Prospective applicants who have little or no background in psychology or research should have taken at least one course in the major and meet the following criteria are guaranteed admission: (1) complete all seven prerequisite courses; (2) have a 3.2 GPA in prerequisite courses; (3) submit the application to the department by the posted deadline. If any of the above criteria are not met, students may apply for admission to the major; however, admission to the major is not guaranteed. Applications will be processed once all prerequisite courses are completed and final grades posted.

Graduate Training Programs. The graduate program is designed for doctoral students interested in pursuing advanced study and conducting original research in psychology. New admissions are restricted to candidates for the Ph.D. Students are accepted for the fall semester only. Detailed information concerning admission, financial aid, and degree requirements is available online at psychology.berkeley.edu.

The graduate admission application can be completed online at grad.berkeley.edu. To receive a paper copy of the program brochure and/or an admission application, send a written request to the Psychology Graduate Admissions Office, Department of Psychology, University of California, Berkeley, CA 94720-1650.

Graduate Training Programs. Graduate training is organized around five major research areas:

1. Behavioral Neuroscience, (2) Change, Plasticity, and Development, (3) Clinical Science, (4) Cognition, Brain, and Behavior, (5) Social/Personality. A mission statement and information on program requirements for each of these areas can be found on the department’s web site at psychology.berkeley.edu/graduate. Graduate students complete a core set of department-wide courses (statistics, professional develop-
General Psychology

Further Information. The online Schedule of Classes issued prior to each semester and the course descriptions published at the beginning of each semester provide more detailed and up-to-date information about classes offered by the Psychology department. Please consult these resources for current course offerings.

Lower Division Courses

1. General Psychology. (3) Students will not receive credit for 1 after taking 2. Two hours of lecture and one hour of discussion per week. Introduction to the principal areas, problems, and concepts of psychology. This course is required for the major; students not considering a psychology major are directed to 2. (F,SP)

2. Principles of Psychology. (3) Students will not receive credit for 3-4 after taking 1. Three hours of lecture per week. An overview of psychology for students who will not major in the field. This course satisfies the prerequisite for upper division courses. (F,SP)

14. Psychology of Gender. (3) Three hours of lecture per week. Examination of various factors in the development of feminine and masculine roles, including personality, social processes, biology, and culture.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments; topics vary from department to department and semester to semester.

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Sections offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

45. Freshman Seminars. (1) Two hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Open to students in the Psychology Undergraduate Program. Weekly discussion of the nature, methods and aims of contemporary psychology. Students are expected to read an article each week and actively participate in the discussion with the speaker.

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for units up to 15 weeks. Two hours of seminar per week for units over 15 weeks. Three hours of seminar per week for unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

98. Supervised Group Study. (1-3) Course may be repeated for credit. One to three hours of directed group study per week. Must be taken on a passed/not passed basis. Group study of selected topics. Enrollment restrictions are noted in Courses and Curricula section of this catalog.

99. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: 1 or consent of instructor. Intended for freshmen and sophomores who wish to undertake a program of individual inquiry on a topic in psychology. (F,SP)

Upper Division Courses

101. Research and Data Analysis in Psychology. (4) Three to five hours of lecture and zero to two hours of laboratory per week. Prerequisites: 1 and completion of the quantitative prerequisites for the major. This course will concentrate on hypothesis formulation and testing. The course will include an emphasis on various aspects of research design and methodology, including research designs, sampling, and the analysis of results, primarily using the R statistical software. Students will learn the research process, including hypothesis formulation, data collection, and analysis, and gain experience in writing scientific research proposals and reports. The course will also cover the ethical considerations involved in conducting psychological research. Students will be required to complete a research project and present their findings in class. (F,SP)

104. Perspectives on the Young Child in Society. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 110 (Social Welfare majors). This course provides a multidisciplinary approach to understanding the development needs of children from birth to age five in the context of the varied social institutions in which they are cared for and educated. Specific attention will be focused on how children's experiences within and beyond their families vary by social class, ethnicity and language, family needs and preferences, and special needs. Students will examine how expectations for young children change over time and will become familiar with current and past policy debates about the education and social well-being of young children. Also listed as Education C116A and Social Welfare C128. (F,SP) Bernick

C105. Psychology of African American People: Current Issues. (3) Three hours of lecture per week. Prerequisites: African 5B or 101A, or upper division course in psychology. Examines psychological research and theory pertaining to African American people. Emphasis is placed on research methods and conclusions regarding African Americans offered by American psychology from its origins to the present. Also listed as African American Studies C132.

106. Psychology of Dreams. (3) Two hours of lecture and one hour of discussion per week. Dreaming is a necessary, universal nightly activity of the human mind and brain. This class will cover some of the major psychological theories, interpretations, and uses that have been postulated to explain the function of dreams. Also discusses the nature of dreaming and encourages students to keep a dream log as a way of documenting their dreams. Students will also learn about the general rules that govern dreams. (F,SP)

107. Buddhist Psychology. (3) Two hours of lecture and one hour of discussion per week. Based on tradition of direct observation of working of ordinary minds in everyday life situations. Provides contrasting perspectives on cognitive, perceptual, motivational, emotional, social, and neurotic phenomena. (F,SP)

109. History of Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 101 or consent of instructor. Development of scientific study of human and animal behavior. Consideration of history of particular subject areas—such as biological, comparative, developmental, personal- ity, and social psychology—as well as general trends.

Biological Psychology

110. Introduction to Biological Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1 and biological prerequisites for the major or consent of instructor. Survey of relations between behavioral and biological processes. Topics include sensory and motor systems, neural maturation, natural bases of motivation, and learning. (F,SP)

111. Sensory Processes: Vision. (3) Three hours of lecture per week. Prerequisites: 110 or consent of instructor. Examination of visual perception (adaptation, brightness and color vision, binocular vision, object detection) in relation to anatomy and physiology of the visual system.

C113. Biological Clocks: Physiology and Behavior. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Completion of biological prerequisites for the major and one of the following: 110 or a course in animal organizational biology (Integrative Biology 132, 140, 148, or Molecular and Cell Biology 160). A consideration of the biological clocks that generate daily, lunar, seasonal and annual rhythms in various animals including people. Emphasis on neuroendocrine substrates, development and maturation of the nervous system, including rhythms, sleep-wakefulness cycles, reproductive and hibernation cycles, body weight and migratory cycles. Also listed as Integrative Biology C143A.

114. Biology of Learning and Neural Plasticity. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 110 or consent of the instructor. A study of theoretical and experimental investigations of the biological substrates of learning, memory and forms of neural plasticity related to the growth and maturation of the nervous system. (F,SP)

115A. Introduction to Comparative Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 110. Studies of animal behavior in evolutionary perspective, including analysis of behavior development, reproduction, aggression, territoriality.

C115B. Animal Behavior. (4) Students will receive no credit for C115B after taking Integrative Biology 146 or Integrative Biology 146L. Three hours of lecture and one hour of discussion per week. Formerly 115B. An introduction to the study of animal behavior in an evolutionary context. Topics covered include the genetic, physiological, ecological, and cognitive bases for animal behavior. This course, which emphasizes understanding of the general principles, serves as the foundation for advanced courses in behavior offered through Integrative Biology and Psychology. Three midterms and a cumulative final exam. Also listed as Integrative Biology C144. Caldwell, Lacey, Bentley

C116. Hormones and Behavior. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Completion of biological prerequisites for the major and consent of instructor; a course in mammalian physiology required. Course provides a comprehensive overview of behavioral endocrinology beginning with hormone production and actions on target tissues and continuing with an exploration of various forms of behaviors and their hormonal regulation/consequences. The course uses a comparative approach to examine the reciprocal interactions between the neuroendocrine system and mammalian behavior, considering the effects of hormones on development and adult behavior in addition to how behavior regulates endocrine physiology. While much of the course focuses on non-human vertebrate species, the concepts and research findings generated from these species are often directly applicable to human behaviors. Topics include: sexual differentiation and sex differences in behavior, reproductive, parental, and aggressive behaviors, and hormonal and behavioral dynamics in social competition. Also listed as Integrative Biology C143B. (SP) Kriegsfeld
117. Human Neuropsychology. (3) Two hours of lecture and one hour of discussion per week. Prerequi- sites: 110. A survey of contemporary psychological approaches to human disabilities, including mental disorders, behavioral changes following human brain injury and disease, and mental subnor- mality. Emphasis on nervous system models of these problems and on potential application of basic research development.

118. Topical Seminar in Biological Psychology. (3) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. For a precise schedule of content, check with the Student Services office each semester.

119. Drugs and Behavior. (3) Students will receive no credit for 119 after taking Letters and Science 19 or Molecular and Cell Biology 62. Two hours of lecture and one hour of discussion per week. Prerequisites: 110 or consent of instructor. A survey course exploring the basic principles of psychopharmacology. The major focus of the course is on the relationship between behavior and the physiological actions of drugs. Emphasis will be placed on effects of pharmacological agents on complex mental processes such as attention, motivation, learning, and memory.

Cognitive Psychology

C120. Basic Issues in Cognition. (3) Students will receive no credit for C120 after taking 120A. Two hours of lecture and one hour of discussion per week. Theoretical foundations and current controversies in cognitive psychology will be discussed. Basic issues in cognition—including perception, imagery, memory, categorization, thinking, judgment, and development—will be considered from the perspectives of philosophy, psychology, computer science, and physiology. Particular emphasis will be placed on the nature, implications, and limitations of the computational model of mind. Also listed as Cognitive Science C100. (F)

121. Animal Cognition. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 115B or consent of instructor. This course focuses on how animals process, organize, and retain information. Specific topics include learning and memory, sensory processes, navigation and migration, communication, and cross-species comparisons of behavior. Material will be drawn from the ethological, behavioral/experimental, and, to a lesser extent, the neurosciences literature.

122. Introduction to Human Learning and Memory. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course is recommended to provide a theoretical and experimental analysis of human learning and memory; short-term and long-term memory; coding and retrieval processes; transfer and interference; mechanisms of forgetting. Also listed as Cognitive Science C102.

C123. Computational Models of Cognition. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Calculus, discrete mathematics, Cognitive Science C1, Computer Science 61A, or equivalent. This course will provide advanced stu- dents in cognitive science and computer science with the skills to develop computational models of human cognition, giving insight into how people solve challenging computational problems. We will explore how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition—symbolic approaches, neural networks, and probability and statistics—considering the strengths and weaknesses of each. Also listed as Cognitive Science C131.

C124. Psycholinguistics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: An introductory course in linguistics or consent of instructor. Psycholinguistics, empirical and computational, explores the effecting of psychological variables on the learning and use of language, influence of language behavior on psychological processes; special attention to psychology of children, modern linguisitc theory and to social psychological aspects of language behavior. Also listed as Cognitive Science C124.

125. The Developing Brain. (3) Students will receive no credit for 125 after taking 129 Fall 2007. Two hours of lecture and one hour of discussion per week. Pre- requisites: A survey of information or human neu-ropsychology course recommended but not required. What are the changes in brain structure and function that underlie improvements in cognitive abilities over childhood, maturation, adolescence, and adult age? From a dif- ferent perspective, what insights can we gain regarding the neural basis of cognition by examining how the brain develops? And how are such findings rele- vant for modeling brain development? This cutting edge new field of developmental cognitive neuroscience is beginning to address these and other questions. This course will constitute an overview of current research and methods in this field, focusing on both typically and atypically developing children and adolescents.

126. Perception. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. 101 recommended. An introduction to primi- tive approaches to perceiving visual, auditory, and tactile objects and environments. The course will cover perception—basic theories and percep- tual attention. Also listed as Cognitive Science C126.

127. Cognitive Neuroscience. (3) Two hours of lecture and one hour of discussion per week. Prerequi- sites: 110 or C120, or Cognitive Science C100 rec- ommended. This course will examine research investigating the neural basis of cognition. Mater- ial covered will include studies of normal and neurologically impaired patients, neuropsychological research in animals, and the study of normal cognitive processes in humans with non-invasive and invasive techniques, such as functional Magnetic Resonance Imag- ing (fMRI), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). Topics to be covered include perception, attention, memory, lan- guage, motor control, executive control, and emotion. Also listed as Cognitive Science C127.

128. Topical Seminars in Cognitive Psychology. (3) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. For a precise schedule of offerings, check with the Student Services office each semester.

129. Scientific Approaches to Consciousness. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1 or Cognitive Science C1; or C120 or Cognitive Science C100 recommended. This course will examine the nature of human consciousness from the interdisciplinary perspective of cognitive science. It will cover topics from the philosophy of mind, cognitive linguistics, neuroscience, psychology, and computa- tional models. Also listed as Cognitive Science C102.

Clinical Psychology

130. Clinical Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1. Theoretical and empirical approaches to the expla- nation of psychological dysfunction. The relation between theories of psychopathology and theories of intervention. A critical evaluation of the effects of individ- ual, family, and community approaches to thera- peutic and preventive intervention. Also listed as Cognitive Science C131.

131. Developmental Psychopathology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 130 or consent of instructor. This course will discuss the development of developmental pro- cesses and child psychopathology. Included will be the discussion of cognitive impairments in children, includ- ing learning disabilities; intellectual disability; inter- nalizing disorders, such as anxiety, withdrawal, and depression; externalizing disorders, such as attention- deficit hyperactivity disorder and conduct disorder; and child and adolescent, familial, legal, and societal factors will be emphasized.

132AC. Community Psychology: An American Cultures Perspective. (4) Two hours of lecture and one and one-half hours of discussion per week. Prereq- usites: 130 or consent of instructor. Introduction to community psychology with a comparative emphasis on ethnic cultural diversity. Critical examination of research and evaluations, and psychological fac- tors that affect the development of mental health, and social/community intervention approaches that pre- vent dysfunction or promote competence for popula- tions. Specific topics include psychosocial, epidemiolog- ical, and psychological, and social development during the critical period hypothesis, sign language, creoliza- tion, bilingualism, and language and thought.

Developmental Psychology

140. Developmental Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequi- sites: 1. This course explores the development of children from birth to adolescence, in a wide range of areas including biological, cognitive, linguistic, social, and personality development. It covers the effects of genes, experience, and social context on children’s development. (F,SP)

141. Development During Infancy. (3) Two hours of lecture and one hour of discussion per week. The course will explore the question—“How do children manage to learn language?”—by examining classical and con- temporary theories of language acquisition. Topics include: early speech perception, word learning, the acquisition of phonology, morphology, syntax, and pragmatic knowledge. In addition, we will cover topics such as language development disorders (e.g., autism), the critical period hypothesis, sign language, creoliza- tion, bilingualism, and language and thought.

146. Developmental and Biological Processes in Attatchment. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course provides an integrative approach to the topic of human and subhuman pri- mate attachment. Based on ethological and evol- utionary perspectives, it moves through considerations of the effects of separation and loss in non-human primates to consideration of individual differences in the organization of human attachments. Recent ad- vances in understanding of representational (cogni- tive) aspects of individual differences in attachment are stressed.

148. Topical Seminars in Developmental Psy- chology. (3) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: Consent of instructor. For a precise schedule of offerings, check with the Student Services office each semester.

149. Topical Laboratories in Developmental Psy- chology. (3) Course may be repeated for credit with different topic and consent of instructor. Two hours of laboratory per week. Prerequisites: Consent of in- structor. For a precise schedule of offerings, check with the Student Services office each semester.
Personality Psychology

150. Psychology of Personality. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1. A consideration of general and systematic issues in the study of personality and an evaluation of major theoretical positions. (F,SP)

156. Human Emotion. (3) Two hours of lecture and one hour of discussion per week. This course will examine two different theoretical perspectives on emotion: (1) the differential emotions approach with its strong evolutionary grounding, and (2) the social constructionist approach. Next, the course will investigate empirical research on many facets of emotion including facial expression, physiology, appraisal, and the lexicon of emotion. Finally, we will consider more specific topics including social interaction, culture, gender, personality, and psychopathology.

158. Topical Seminars in Personality. (3) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: 150 and consent of instructor. For a precise schedule of offerings, check with the Student Services office each semester.

Social Psychology

160. Social Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1. Survey of social psychology including interaction processes, small groups, attitudes and attitude change, and social problems. (F,SP)

162. Human Happiness. (3) Students will receive no credit for C162 after taking 162 or Letters and Science C160V or 160C. Two hours of lecture and one hour of discussion per week. Prerequisites: 160 or consent of instructor. This course will take an interdisciplinary approach to understanding the nature of happiness. The first part of the course will be devoted to the different treatments of happiness in the world's philosophical traditions, focusing up close on conceptions of the good life in Eastern (Taoism, Buddhism, Confucianism) and Western (Christian) thought. The great traditions in East Asian thought (Taoism, Buddhism, Confucianism), and ideas about happiness that emerged more recently in the age of Enlightenment. With these different perspectives as a framework, the course will then turn to treatments of happiness in the behavioral sciences, evolutionary biology, and neuroscience. Special emphasis will be given to understanding how happiness arises in experiences of the moral emotions, including gratitude, compassion, reverence and awe, as well as aesthetic emotions like humor and beauty. (F,SP) Ketleher

C162. Human Happiness. (3) Students will receive no credit for C162 after taking 162 or Letters and Science C160V or 160C. Two hours of lecture and one hour of discussion per week. Prerequisites: 160 or consent of instructor. This course will take an interdisciplinary approach to understanding the nature of happiness. The first part of the course will be devoted to the different treatments of happiness in the world's philosophical traditions, focusing up close on conceptions of the good life in Eastern (Taoism, Buddhism, Confucianism) and Western (Christian) thought. The great traditions in East Asian thought (Taoism, Buddhism, Confucianism), and ideas about happiness that emerged more recently in the age of Enlightenment. With these different perspectives as a framework, the course will then turn to treatments of happiness in the behavioral sciences, evolutionary biology, and neuroscience. Special emphasis will be given to understanding how happiness arises in experiences of the moral emotions, including gratitude, compassion, reverence and awe, as well as aesthetic emotions like humor and beauty. (F,SP) Ketleher

164. Social Cognition. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: C120 or 150 or 160, or Cog Sci C100. Surveys empirical and theoretical understandings of perception, memory, thought, and language concerning ourselves, other people, interpersonal behavior, and the situations in which social interaction takes place. Emphasis on the integration of problems in social, personality, and clinical psychology with the concepts and principles employed in the study of nonsocial cognition.

165. Psychology of Creativity. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1, 160 or consent of instructor. This is the first course of the seminar, focusing up close on conceptions of creativity, both at the individual and the group level. We will consider traits of highly creative individuals (vs. less creative individuals) and the ways in which influence processes affect individual creativity and will then focus on group creativity, including techniques by which creativity is hindered or stimulated. Finally, we will consider applications from organizations as we consider cultures in which creativity thrives. Throughout the course, discussion will be encouraged and we will also do some experiential exercises. The course will be a combination of lecture, discussion, and experiential learning. Nemeth

Special Course Offerings

190. Cluster Seminar. (1) Two hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Psychology major and admission to the Cluster Program. Weekly discussion of the nature, value, and aims of contemporary psychology. Students are expected to read an article each week and actively participate in the discussion with the speaker.

192. Special Topics in Psychology. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Consent of instructor. Course examines current problems and issues in psychology.

H194A-H194B. Honors Seminars. (2,3) Two hours of seminar per week. Prerequisites: Required of and limited to psychology majors in the honors program. This course will be divided into three sections: bias (i.e., the persistence of stereotypes for their targets. This course will review the major contributions of each of these literatures, and discuss the implications for our understanding of race, culture, and ethnicity in American society. Mounting evidence suggests that psychological processes are culture-specific, theory-driven, and context-dependent. This course will focus on the effects that theories of mind, person, self, and social institutions have on human cognition, motivation, emotion, and social interactions in American society. Students will engage in discussion of the ways that cultural traditions and social practices regulate and transform psychological functioning. Simply, the course is about how culture affects psyche and how psyche affects culture. This course satisfies the American Cultures requirement. (F,SP)

H197. Field Study in Psychology. (1-3) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: 1; appropriate upper division work in psychology (to be determined by instructor). Consent of instructor. Supervised experience relevant to specific aspects of psychology in off-campus or on-campus group meetings with faculty. Enrollment is restricted by regulations of the Berkeley Division listed elsewhere in this catalog. (F,SP)

H198. Directed Group Study. (1-3) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Group study of a selected topic or topics in psychology. Enrollment is restricted by regulations of the Berkeley Division listed elsewhere in this catalog. (F,SP)

H199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Enrollment is restricted by regulations of the Berkeley Division listed elsewhere in this catalog. (F,SP)

Graduate Courses

Graduate standing and the consent of the instructor are prerequisites for all graduate offerings. (Undergraduates may enroll only upon approval of a faculty adviser and consent of the instructor.) Courses beginning each decade are designated as prosemesters and are designed to provide the background essential for students planning to concentrate in that area of specialization. These prosemesters are sufficiently general, however, for students from other areas of psychology to obtain breadth of training in the areas of study. (Most prosemesters are self-contained and may be taken separately. For most, the sequence is not critical. See instructor before enrollment.) Students in other departments may obtain permission to enroll in these courses, since they are designed primarily for first- and second-year graduate students in psychology.

Quantitative Psychology

C204. Research Reviews in Animal Behavior: Behavior Review. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Prerequisites: Graduate standing, basic course in animal behavior, and consent of instructor. This course will discuss current publications in animal behavior. A student will summarize a paper and lead the discussion at the next meeting. 

B prefix=language course for business majors C prefix=course limited to business students H prefix=honors course R prefix=course satisfies R&C requirement AC suffix=course satisfies American Cultures requirement *Professor of the Graduate School †Recipient of Distinguished Teaching Award

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cussion that follows. Occasionally, the group reviews a manuscript in preparation, or a thesis proposal. Not all participants need report, but all are expected to attend and to enter into the discussions. Current lecturers or invited each semester. Also listed as BioreneSci, Policy, and Management C204 and Integrative Biology C204. (F,SP) Staff

205A-205B. Data Analysis. (3:3) Three hours of lecture and two hours of discussion/labouratory per week. Students will present and discuss their problem (homework). A general data analytic course that emphasizes design issues and problems, from pure experimental research through field studies. Techniques of ANOVA and multiple regression/correlation will be presented as analytical models for both lab and field research.

Biological Psychology

210A-210E. Proseminar: Cognition, Brain, and Behavior. (3:3:3:3:3) Three hours of lecture per week. A survey of the field of biological psychology. Areas covered are: (a) cognitive neuroscience; (b) biological bases of behavior; (c) sensation and perception; (d) learning and memory; (e) thought and language. Three hours of lecture per week. Prerequisites: 210A-210B. A consideration of the influence of hormones on reproductive behavior, including emphasis on the process of sexual differentiation. Discussions of parental behavior, seasonal reproduction and hormonal involvement in non-reproductive processes, including eating, social behavior, learning and memory. Emphasis on mammalian. Three hours of lecture per week. This course will describe the impact of stress, hormones and experience on the brain and behavior. We will adopt both a multidisciplinary and interdisciplinary approach to the concept of stress. What is stress? What is social stress? What are the effects of acute and chronic stress exposure on the body physiology? What are the effects of stress on the brain? On cognition? On gene expression? On adult neurogenesis? Also listed as Integrative Biology C240. (F) Francis, Kaufer

214. Functional MRI Methods. (3) Three hours of lecture per week. This course will provide an overview of functional MRI methodology. Topics to be covered include the basic physics of fMRI, the nature of BOLD fMRI signal, the spatial and temporal resolution of fMRI, issues in experimental design, and statistical techniques used for analyzing fMRI data. The class will review published studies, as well as ongoing research projects, thus providing many opportunities for student and student/teacher interactions. Students will have the opportunity for hands-on experience performing an fMRI experiment and analyzing the data.

Cognitive Psychology

222. Consciousness. (3) Three hours of lecture per week. Formerly 220B. Survey of psychological, philosophical, and neuroscientific approaches to consciousness. Introspection. The mind-body problem. Automatically. Explicit-implicit dissociations in memory, perception, and thought. Implicit emotion and motivation. Sleep and dreams. Anesthesia and coma. Hypnosis. Metastatistical Consciousness in nonhuman animals and computing machines. Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly C220D. Students will examine problem solving in children and adults, from a primarily cognitive science perspective, beginning with an examination of thinking involved in diverse problem types. Students will then analyze the literature concerning cognitive issues that transcend problem types, including representa- tion, “understanding,” access and availability of knowl- edge, access to one’s own cognitive processing, categorization, the architecture of the knowledge, and the control of cognition. Also listed as Education C229A, Ranney

224. Judgment and Decision Making. (3) Three hours of lecture per week. Formerly 220G. This course will examine how people make judgments, choices, decisions, and evaluations. Descriptive models will be compared to rational models of beliefs and actions. Topics will include probability, assessment, attitudes toward risk, multi-attribute judgment, contextual effects, and theories of preference and choice.

225. Concepts and Categories. (3) Three hours of lecture per week. This seminar will look at some of the basic issues in categorization that have been the focus of psychological research: the classical view of categories (defining features) versus gradedness/prototypr; the idea of basic categories (its proliferation of implications); categorization and life events; personality trait designa- tions as categories; categories viewed as theories; developmental issues and the relationship between categorization and language.

229. Cognition, Brain, and Behavior Colloquium. (1) Course may be repeated for credit. One and one-half hours of colloquium per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. Reports and discussions of original research in the area of cognitive psychology. Not all participants must report in any given semester, but all are expected to attend and to enter into the discussions. Three hours of lecture per week. This course will examine problem solving in children and adults, from a primarily cognitive science perspective, beginning with an examination of thinking involved in diverse problem types. Students will then analyze the literature concerning cognitive issues that transcend problem types, including representa- tion, ”understanding,” access and availability of knowl- edge, access to one’s own cognitive processing, categorization, the architecture of the knowledge, and the control of cognition. Also listed as Education C229A, Ranney

230A-230B. Proseminar: Clinical Psychology. (3:3) Three hours of lecture per week. Formerly 230. Examination of major theoretical and historical themes in the development of modern clinical psychology, with special attention to concepts of mental health and psychopathology, models of intervention and clinical research, and emerging professional roles and institu- tions. Fall semester will focus on both adult and child psychopathologies, and on ethnic minority mental health and community/prevention.

233A-233B. Clinical Assessment: Theory, Application, and Practicum. (3:3) Three hours of lecture per week. Prerequisites: First-year status as gradu- ate student in clinical psychology or enrollment in limited training in clinical psychology. The clinical inter- view and principles and methods of intellectual, objec- tive, and projective clinical assessment. Readings, discussion, and supervised experience in clinical as- sessment. The first semester will focus on his adult assess- ments; the second semester will focus on child/ adolescent assessments. Required of all clinical students.

234B. Theories of Child and Family Therapy. (3) Three hours of lecture per week. Analysis of major approaches to promoting developmental change in children, couples and families.

234C. Theories of Community Intervention. (3) Three hours of lecture per week. Examination of theory and research underlying social and community approches to the promotion of mental health and the prevention of dysfunction. Analysis of major methods of intervention, with a special focus on consultation.

234D. Theories of Cognitive Behavior Therapy. (3) Three hours of lecture per week. Central features of cognitive behavior therapy; basics of several cogni- tive-behavioral theories; evidence of efficacy and effectiveness of methods; methods for assessing, con- ceptualizing and treating patients; theories, methods, and efficacy evidence for several disorders, primar- ily anxiety and affective disorders.

236. Specialty Clinic. (3) Three hours of clinic per week. Prerequisites: Open only to Clinical Science Program graduate students. A specialty clinic is offered to graduate students in the Clinical Science program. Each course combines didactics and hands-on clinical experience in their area of interest. Students will work with the instructor to develop the topic of interest by reviewing the empirical literature, defining and developing an intervention/con- sultation, defining a clinical population, marketing and delivering the intervention/consultation, and evaluating the effectiveness of the intervention/consultation. A number of readings are included in the course, and class discussion is a central part of the course. Written work. Students are invited each semester. Also listed as Integrative Biology C240. (F,SP) Staff

237A. Intervention: Adult Psychotherapy. (1) Course may be repeated for credit. One hour of clinic per week. Prerequisites: Limited to second- and third-year clinical psychology students or consent of instructor. Psychological intervention with adults. (F,SP) Staff

237B. Intervention: Child and Family Therapy. (1) Course may be repeated for credit. One hour of clinic per week. Prerequisites: Limited to second- and third-year clinical psychology students or consent of instruc- tor. Psychological intervention with children, couples and families. (F,SP) Staff

237C. Intervention: Community. (1) Course may be repeated for credit. One hour of lecture per week. Prerequisites: Limited to second- and third-year clinical psychology students or consent of instructor. Consultation, program evaluation, program development, and prevention in community settings. (F,SP) Staff

237E. Intervention: Clinical Decision Making. (3) Course may be repeated for credit. Three hours of clinic per week. Prerequisites: Limited to second- and third-year clinical psychology students or consent of instructor. Issues in decision-making including consulting, and advising for children, couples and families.

237G. Intervention: Specialty Clinics. (1,2) Course may be repeated for credit. One to two hours of clinic per week. Prerequisites: Limited to second- and third-year clinical psychology students or consent of instruc- tor. Psychological intervention with children, couples and families. (F,SP) Staff

239. Clinical Seminar. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or consent of instructor. Reports and discussions of original research in the area of clinical psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discus- sions. Required course for all students in the clinical graduate program. (F,SP) Staff

Developmental Psychology

240A. Proseminar: Biological, Cognitive, and Lan- guage Development. (3) Three hours of lecture per week. Survey of the biology of the nervous system and behavior; the cellular interactions during develop- ment in animals and humans; and the development of the neural basis of language behaviors including synthesis, synaptogenesis, cell death and synapse elimi- nation; and the genetic and experiential determinants of neural development. Exploration of the origins and development of knowledge from infancy through child- hood; the development of children’s concepts across multiple domains, including physics, biology, math, and psychology. Survey of facts and theories of lan- guage acquisition; focus on what learners acquire and the role of input in the process; review of phonology, syntax, and morphology.
240B. Proseminar: Emotional, Social, and Psycho-pathological Development. (3) Three hours of lecture per week. Survey of current research and theory on the origins and maintenance of normal and patholog-ical socioemotional development in infancy. Explo-ration of biological, psychological, familial, and cultural factors affecting social and emotional development throughout childhood and adolescence. Focus of the course includes how normal or pathological trajectories are maintained in some children, while others shift into or out of clinically diagnosable disorders.

242. Cognitive Development. (3) Three hours of lec-ture per week. Formerly 240C. Theory, research, and methods for studying the mechanisms and processes of cognition from infancy through early childhood. Topics include learning, memory, categorization, explo-ration of the origins and development of knowledge in the domains of biology, physics, number, mind, lan-guage, and morality.

243. Language Development. (3) Three hours of lecture per week. Formerly 240D. Theoretical and methodological approaches to the study of language acquisition. Topics include the acquisition of phonology, syntax, and morphology, with a focus on the role of input versus the innate endowment of the learner.

249. Developmental Seminar. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Must be taken on a satisfactory/unsatis-factory basis. Graduate standing or consent of instruc-tor. Reports and discussions of original research in the area of developmental psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discussions. Required course for all students in the developmental graduate program. (F,SP)

Personality Psychology

250A. Perspectives in Personality: Overview. (3) Three hours of lecture per week. Introduces the perspec-tives and research programs of the personality faculty to graduate students having an interest in their field. Each week, attention is directed to the work of a different faculty member associated with the personality program.

250B. Perspectives in Personality: Trends and Issues. (3) Three hours of lecture per week. Considers historical trends and current discussions regarding such topics as: (1) the concept of disposition; (2) person by environment transactions; (3) observational assessment of persons; (4) personality systematics; (5) personality development and concepts of structure, and (6) formulations of personality system-social system interactions.

250C. Proseminar: Social Cognition. (3) Three hours of lecture per week. Surveys empirical and theo-retical approaches to our understanding of perception, memory, thought, and language concerning ourselves, other people, interpersonal behavior, and the situations in which social interaction takes place. Emphasis is placed on the integration of problems in social, personality, and clinical psychology with the concepts and principles employed in the study of nonsocial cognition.

250D. Principles and Pragmatics of Personality Measurement. (3) Three hours of lecture per week. Methods of personality measurement and assess-ment, with particular attention to the qualities, attributes, talents and dispositions considered in the every-day evaluations people make of self and others.

250E. Perspectives in Personality: Personality Theory. (2) Two hours of lecture per week. Major approaches to personality theory, including psycho-dynamic, behavioral, psychometric, and humanistic theory, as well as work in culture and personality, the study of lives, and feminist psychology. Analysis of relations between the life, work, and social-historical context of Freud, Skinner, Rogers, Eysenck, Margaret Mead and others, with attention to the origins, course, and (on occasion) fall of each tradition. Also listed as Social Welfare C210H.

259. Personality Seminar. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Must be taken on a satisfactory/unsatis-factory basis. Prerequisites: Graduate standing and consent of instructor. Reports and discussions of original research in the area of personality psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discussions. Required course for all students in the personality graduate program. (F,SP)

Social Psychology

260B. Proseminar Course in Social Psychology. (3) Course may be repeated for credit. Three hours of lecture per week. Extensive coverage of theoretical and research literature. Topics include history and systems, attitudes and attitude change, interpersonal processes, motivation, social interaction, small groups, and organizational behavior. Required course for all students in the social psychology graduate program. (F,SP)

268. Human Ecology of Memory. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Graduate standing or consent of instruc-tor. Explores the relation between memory as a cognitive function and the personal and social contexts in which remembering takes place. Emphasis on the relation between memory as a cognitive function and as a vehicle for social relations, and on the relation between individual and social memory. Sample topics: emotion and memory; collective memory; social influ-ences on individual memory; memory in interpersonal relationships; identity and personal narrative; memory and memory; interpersonal memory; memory as a linking psychology to the other so-cial sciences, the humanities, and the arts. (F) Kihlstrom

269. Social Seminar. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Must be taken on a satisfactory/unsatis-factory basis. Prerequisites: Graduate standing or consent of instruc-tor. Reports and discussion of original re-search in the area of social psychology. Not all parti-cipants need report in any given semester, but all are expected to attend and to enter into the discussions. Required for all students in the social graduate pro-gram. (F,SP)

Special Course Offerings

290. Seminars. Course may be repeated for credit. Two hours of seminar per week. (F,SP)

290B. Biological. (2)

290E. Perception. (2)

290G. Language and Communication. (2)

290H. Developmental. (2)

290I. Personality. (2)

290J. Social. (2)

290K. Clinical. (2)

290P. Additional Seminars on Special Topics to Be Announced. (2)

290Q. Cognition. (2)

290Z. Seminars. (3) Special section.

292. Introduction to the Profession of Psychology. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly 292A. This course provides both a broad review of the field of psychology and an introduction to the faculty of this department. Faculty from various program areas will present biographical information and discuss their particular research programs, as well as summarizing current developments in their areas. The course will also cover topics in professional development (e.g., scientific writing, convention presentations, jour-nal review processes, professional and scientific ethics, and special issues facing women and minority psy-chologists). Required of all first-year students in the graduate program. (F)

293. Second-Year Seminar on Professional Devel-opment. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly 292B. This course will focus on various issues related to professional development. Topics may include planning a research program, preparing for qualifying exams, choosing a dissertation com-mittee, identifying career options, presenting work at conferences and in journals, preparing grant propos-als, preparing for job interviews, juggling professional and personal life, and recognizing obstacles in career development. The seminar participants will select at least two topics for an ongoing discussion. All partici-pants will present their research at a departmental poster session at the end of the term. Required of all second-year students. (SP) Staff

294. Current Issues Colloquium Series. (1) Course may be repeated for credit with consent of instructor. One to two hours of colloquium per week. Must be taken on a satisfactory/unsatisfactory basis. Current issues in specified areas of psychology presented weekly by announced speakers.

298. Directed Study. (1-12) Course may be repeated for credit. Individual conference. Special study under the direction of a member of the staff. (F,SP)

299. Research. (1-12) Course may be repeated for credit. Individual conferences. Individual research. (F,SP)

602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Individual confer-ences. Must be taken on a satisfactory/unsatisfactory basis. Individual study under the major field adviser, intended to provide opportunity for qual-ified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used to satisfy requirements for the doctoral degree. (F,SP)

Professional Courses

300. Teaching Psychology. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This course will: (1) provide training in a variety of teaching techniques, (2) review relevant pedagogical issues, and (3) assist graduate students in mastering their initial teaching experiences. (F)

301. Supervision for Teaching Psychology 2. (2) Course may be repeated for credit. Two hours of sem-inar per week. Must be taken on a satisfactory/unsatisfactory basis. This course will: (1) provide training in a variety of teaching techniques, (2) review relevant pedagogical issues, and (3) assist graduate students in mastering their initial teaching experiences. (F)

401A-401B. Clinical Internship (Off Campus). (1-12) Credit and grade to be awarded on comple-tion of internship appointment. Individual conferences. Prerequisites: Advancement to candidacy, and consent of instructor. Supervised teaching experience for graduate student instructors of Psych 2. (F,SP)

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B prefix=language course for business majors
C prefix=listed course
H prefix=honors course
R prefix=course satisfies R&G requirement
AC suffix=satisfies American Cultures requirement
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Professors
Barbara F. Abrams, Dr.P.H., University of California, Berkeley. Nutrition and health promotion, food policies, and environmental justice.
Joan R. Bloom, Ph.D., Stanford University. Epidemiology of cancer, occupational and environmental health, and health care policy.
S. Katherine Hammond, Ph.D., Brandeis University. Environmental health science, especially air pollution and health effects.
Patricia A. Buffler, Ph.D., University of California, Berkeley. Cancer epidemiology, especially cancer prevention and cancer control.

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Timothy Brown, Ph.D.
Adam Chokkalingam, Ph.D.
Juliana Deardorff, Ph.D.
Lia C. Fennell, Ph.D.
Darlene Francis, Ph.D.
Robert Freedman, M.D., M.H.S.
Andrea Gabler, Ph.D.
Kenneth Gjeltema, M.D.
Alan Hubbard, Ph.D.
Douglas Jutte, M.D., M.P.H.
Ann Kaler, M.D., M.P.H.
Douglas Oman, Ph.D.
Emily Ozer, Ph.D. and community-based interventions, trauma and post-traumatic disorder
Maya Petersen, Ph.D.
Nicola Prata, M.D., Ph.D.
Craig Steinmaus, M.D., M.P.H.
Bernard Tse, M.D.
Steven Segal, Ph.D. (Social Welfare)
Frances Van Loo, Ph.D. (Business Administration)

Lecturers
Robynn Battle, M.P.H., Ed.D.
James Bellows, Ph.D.
Jeffrey Bracker, Ph.D.
Martha Campbell, Ph.D.
Hanna Dan Cohen, M.S.
Richard Danielson, Ph.D.
Lori Dortman, Dr.P.H., M.P.H.
Sandra Dratler, Dr.P.H.
Wayne Enarson, M.P.H.
Benjamin Fraticelli, M.Div., M.P.H.
Bernard Gompper, M.D.
Sara Hartley, M.D.
Robert Hosang, M.D., M.P.H., M.B.H.
Vincent Iacopino, M.D.
Catry Kodama, M.P.H.
Unneen Lauer, Ph.D.
David Lein, M.S.
Osiln Leva, M.D.
Steve Lipton, J.D., M.P.H.
Jeffrey Luceti, M.D.
Ellie Schindelman, M.P.H.
Edmund Seto, Ph.D.
James Simpson, J.D., M.P.H.
Harry Snyder, M.P.H.
Kimberly Solomon, M.B.A., M.P.H.

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Academic Coordinators
Jacqueline Colby, Ph.D.
Gwenet Sebsibe, M.D., M.P.H.
Abby Rincon, M.P.H.
Kimberly Solomon, M.B.A., M.P.H.
Undergraduate Major in Public Health in the College of Letters and Science

The School of Public Health offers an undergraduate major and curriculum that focuses on both health and social sciences. The goal of the major is to provide students with an interdisciplinary understanding of epidemiology, biostatistics, environmental health, health policy, and related issues. The School of Public Health is dedicated to the health of the human population, giving due consideration to principles of human rights and cultural perspectives that abound in a multicultural country and world.

Lower Division Requirements

- Biological Science Requirement: Biology 1B (required before declaration: minimum letter grade, B+); Biology 1A or two courses from the following: Molecular and Cell Biology 11, 31, 41, 50, 55, or 61; Nutritional Sciences 10.
- Mathematics Requirement: Two courses from the following (or equivalent): Mathematics 32, 16A, 16B, or H16B, 1A, 1B or H1B.
- Social Sciences Requirement: Three courses, drawn from at least two of the following groups: Psychology 1, 2, or 3; Anthropology 3, 3AC, or 12AC; Political Science 2 or 4.
- Recommended: Public Health 14.

Upper Division Requirements

- Public Health 142, 150A, and two from the following: 150B, 150D, 150E, 162A.
- Twelve units of elective courses. Students who plan to continue to graduate school in public health are strongly advised to concentrate elective units in only one or two areas of study.

For lists of approved elective courses and for more information on the major, visit the undergraduate page at the School of Public Health website at sph.berkeley.edu/degrees/undergrad.html.

Overview of Graduate Programs

The mission of the School of Public Health (SPH) is to develop and apply knowledge from multiple disciplines for the promotion and protection of the health of the human population, giving due consideration to principles of human rights and cultural perspectives that abound in our multicultural country and world. The school carries out this mission with programs of teaching, research, and service. These programs, grounded in an interdisciplinary understanding of basic sciences, are integrated through a focus on communities that reach from the neighborhoods surrounding the campus to international settings.

Promotion and protection of the health of human populations require a scientific understanding of epidemiology, biostatistics, and the biological, physical, environmental, social, behavioral, information, and administrative and policy sciences. In the School of Public Health, these and other disciplines address the problems of particular populations, selected diseases or disabilities, and issues associated with the application of resources to public health systems. SPH faculty, support resources, and, critically, focus on both the fundamental disciplines and their applications to particular problems. Within the University and wider community, faculty strive to advance the understanding of fundamental disciplines and their applications to problems faced by human populations, and provide the interdisciplinary context in which future public health practitioners and scholars may develop needed skills and capacities.

The program of study leading to the professional M.P.H. degree is based on a series of foundation courses. In addition, M.P.H. students concentrate in one of the following areas: epidemiology/biostatistics, environmental health sciences, epidemiology, infectious diseases, health and social behavior, maternal and child health, health policy and management, and research methods. The Dr.P.H. curriculum is based on a comprehensive body of knowledge in the field of public health and its related disciplines, and the investigation of significant problems in public health practice.

Programs of study leading to the following academic degrees are offered by faculty members across all terms: the Master of Public Health (M.P.H.), the Doctor of Public Health (Dr.P.H.), and the Doctor of Philosophy (Ph.D.). The program of study leading to the professional M.P.H. degree is based on a series of foundation courses. In addition, M.P.H. students concentrate in one of the following areas: epidemiology/biostatistics, environmental health sciences, epidemiology, infectious diseases, health and social behavior, maternal and child health, health policy and management, and research methods. The Dr.P.H. curriculum is based on a comprehensive body of knowledge in the field of public health and its related disciplines, and the investigation of significant problems in public health practice.

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107. Violence, Social Justice, and Public Health. (2) Two hours of lecture per week. This course addresses violence as a public health issue, using an interdisciplinary public health approach to encourage students to explore and analyze violence from personal, social, community, and political perspectives. Beginning with individual experiences of violence, the course will go on to focus on gender- and race-based violence, firearms, poverty, youth, and collective violence; students will learn to apply public health strategies to identify causes of violence and develop practical community-based plans to prevent violence and promote safety. (F) Craigham, Kodama

113. Campus/Community Health Impact Program. (3) Three hours of lecture per week. The primary goal of this course will be to challenge students to begin the process of rethinking the interconnectedness between personal health and the larger context of society and the impact to community. Classes will cover the principles of public health and social justice, health promotion philosophy, social consciousness, current public health issues, community health issues, diversity and oppression theories. Students are expected to participate in a community-oriented project of their own choosing. The goal of the community project is to translate community action through service learning activities, which will further reinforce the connections between personal health and public health issues. (F) Rincon

114. Issues in Personal and Community Health Promotion. (3) Three hours of lecture and one hour of discussion per week. Introduction to trends and issues in the educational approach to health promotion at the individual and community levels. Presentation of basic information on selected topics (i.e., stress, sexuality, alcohol and drugs, environmental health), with emphasis on the social and political factors that influence both the definition of health and actual health status. (SP) Scheffler

116. Seminar on Social, Political, and Ethical Issues in Health and Medicine. (2) Two hours of lecture and one hour of discussion per week. Must be taken on a passed/not passed basis. Formerly Interdepartmental Studies 130. An interdisciplinary approach to health and social issues. Students will learn about the scope for government intervention in health matters. The course examines the societal and ethical aspects of health and medicine; students will then discuss and present an analysis of reading materials, as well as issues raised by the speakers. (F,SP) Potts

126. Health Economics and Public Policy. (3) Three hours of lecture/discussion per week. Prerequisites: Public Health major or consent of instructor. This course focuses on a selected set of the major health policy issues and uses economics to uncover and better understand the issues. The course examines the scope for government intervention in health markets. (SP) Schaffter

C129. The Aging Human Brain. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Any of the following: 150A-150B, Biology 1A or 1B, Cognitive Science C1, Molecular and Cell Biology 61 or 105A. The course will focus on the field of the human brain, with introductory lectures on the concepts of aging, and brief surveys of normal neuroanatomy, neurophysiology, neurochemistry, and neuropsychology, as well as methods such as imaging, epidemiology, and pathology. The neurobiological changes associated with aging will be covered from the same perspectives; neuropsychology, anatomy, biochemistry, and physiology. Major neurological diseases of the elderly will be described, as will compensatory mechanisms, neuroendocrine changes with aging, depression and aging, epidemiology of aging, and risk factors for decline. Also listed as Neuroscience C129. Offered odd-numbered years. (F) Jagust

130AC. Aging, Health, and Diversity. (3) Three hours of lecture per week. Formerly 130. The goal of this seminar is to provide a critical examination of aging and health from a broad, multicultural perspec- tive. Political economy and life course perspectives will be among the key theoretical frameworks used to examine how race, class, culture, gender, and institutional structures interact to help shape and deter- mine the health and well-being of the elderly and their access to and use of health care. Key programs and policies for the elderly will be examined in socio- logical and policy-oriented context. In addition, this course incorporates a multicultural society. The course will be offered at the undergraduate (upper division) level to meet the American Cultures requirement but is also open to graduate students. The course examines how aging constitutes a multicultural Health Specialty Area in the School of Public Health. This course satisfies the American Cultures requirement. (SP) Minkler

131AC. Race, Ethnicity, and Health, in America. (3) Three hours of lecture per week. Race, Ethnicity, and Health in America will attempt to integrate public health theory, values, and practice into a curriculum that acknowledges and values the health practices and philosophies of African American, Chicano/Latino, Asian, and Native American communities. By examin- ing the historical and cultural prerequisites to health for each ethnic community, this course will allow stu- dents to fully appreciate the distinct contributions of each group. This course satisfies the American Cultures requirement. (SP) Kodama

140. Introduction to Risk and Demographic Statistics. (4) Three hours of lecture and one hour of dis- cussion per week. Prerequisites: One year of calculus. Statistical and evaluation methods in studies of human survival and fertility. Topics such as statistics, methodological issues in demography, terminology and notation, critical appraisal of registry and census data, measurement of risk and introduction to life tables. Computer systems and the analysis of large data sets. (F) Badhwar

142. Introduction to Probability and Statistics in Biology and Public Health. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: High school algebra. Formerly 142A. Descriptive statis- tics, probability, probability distributions, point and interval estimation, one-sample tests, chi-square, correlation and regression with biomedical applica- tions. (F) Selvin

143. Introduction to Statistical Methods in Computational and Genomic Biology. (4) Three hours of lecture and one hour of laboratory per week. Prereq- uisites: 142, Statistics 134, 135 or consent of instruc- tor. This course provides an introduction to statistical and computational methods for the analysis of biomedical and genomic data. Topics introduced in a biological context, include numerical and graphical summaries of data; basic notions in probability; loss-based estimation (e.g., least-squares regression, maximum likelihood estimation); hypothesis testing; multiple hypothesis testing; Markov chains; hidden Markov models, resampling; simulation studies. Biological questions considered include, but are not limited to: modeling meiosis; genetic mapping; nucleotide and protein-sequence analysis; molecular evolution; computational gene finding; and DNA microarray data analysis. The course also introduces the statistical computing resources for the analysis of biological data, with emphasis on the R language and environment (r-project.org) and bioconductor packages. In addition, the course introduces basic notions in genetics and molecular biology and involves the critical reading of articles related to statis- tical analyses in the biological and medical sci- ences. Also listed as Statistics C143. (SP) Dudhut

144A. Introduction to SAS Programming. (2) This course, equivalent to SAS 144A, is required for students who plan to enroll in 251, Practicum in Epidemiological Methods. Enrollment is limited to School of Public Health students. If space permits, others may enroll with consent of instructor. Two hours of lecture, three hours of laboratory, and two hours of work outside of class per week for eight weeks. Prerequisites: 142 or consent of instructor. This course is intended to serve as an introduction to the SAS programming language for Windows in an applied, workshop environment. Emphasis is on data management and programming in a public health research setting. Topics include SAS language to compute, subsetting, testing, cat variables, as well as sort, subset, concatenate, and merge data sets. SAS statistical procedures will be used to compute univariate and bivariate summary statistics and tests, simple linear, and multiple regression, correlation, and regression with biomedical applica- tions. (SP) Lein

144B. Intermediate SAS Programming. (2). Enroll- ment is limited to School of Public Health students. If space permits, others may enroll with consent of instructor. Two hours of lecture, three hours of laboratory, and two hours of work outside of class per week for eight weeks. Prerequisites: 144A. Topics include data step flow control, looping and automated processing, implicit and explicit arrays, data simulation, data set reconfiguration, use of SAS Macro variables, and writing simple SAS Macro programs. (SP) Lein

145. Statistical Analysis of Continuous Outcome Data. (4) Three hours of lecture and two hours of lab- oratory/discussion per week. Prerequisites: 142 or equivalent. Formerly 145A. Regression models for continuous outcome data: least squares estimates and their properties, interpreting coefficients, prediction, comparing models, checking model assumptions, transformation. (SP) Schaffter

150A. Introduction to Epidemiology and Human Disease. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division standing or consent of instructor. Formerly 150. This course introduces epidemiological methods with the goal of teaching students to read critically and interpret published epidemiological studies in humans. The course also exposes students to the epidemiology of diseases and conditions of current public health im- portance in the United States and internationally. (SP) Abrams

150B. Introduction to Environmental Health Scien- ces. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 142 and 150A recommended but will not be taken concurrently. Formerly 150B. This course is a second half of 150. This course emphasizes the role of human and natural activities that lead to release of hazardous materials into the environment as well as the causal links between chemical, physical, and bio- logical effects in the environment and their impact on human health. The basic principles of toxicology will be presented including dose-response relationships, absorption, distribution, metabolism, and excretion of chemicals in the body. The overall role of health and disease in the pattern of human disease, both nationally and
C172. Introduction to Pharmacology and Toxicology. (3) Three hours of lecture per week. Prerequisites: Organic chemistry; upper division biological sciences or equivalent. This course will provide an overview of the history, role, and function of drugs and poisons in human health and in disease. It will cover principles of drug action and toxicology. Brief survey of major groups of chemicals used in therapy. Also listed as Nutritional Science and Toxicology C112. (SP, Wei)

180. The Evolution of Human Sexuality. (2) Two hours of seminar per week. This course is designed to build on introductory topics in evolutionary psychology and outlines a variety of topics in human sexuality with the goal of helping us to understand ourselves and to promote a better understanding of the behavior of others. Students will also be introduced to current issues in U.S. health policy and the present organization of the U.S. health care system. (F, Halpern)

150E. Introduction to Community Health and Human Development. (3) Three hours of lecture/discussion per week. Prerequisites: Upper division standing. This course will consist of a survey of the major social, cultural, and bio-behavioral patterns of health and well-being among individuals, families, neighborhoods, and communities. The course will also address the design, implementation, and evaluation of leading social and behavioral interventions and social policies designed to improve community and population health. This course will satisfy one of the core requirements for the undergraduate major in public health. (SP, Satraniano)

C155. Sociology of Illness and Medicine. (4) Students must take C155 after taking C119. This course covers several topics, including distributive justice in health care, organizational and political aspects of the health system, the correlates of health (by race, sex, class, income), pandemics (e.g., AIDS, Avian Flu and other influenza, etc.), and the experience of illness and interactions with doctors and the medical system. Also listed as Sociology C155. (F, SP)

C160. Environmental Health and Development. (4) Three hours of lecture and one hour of discussion per week. The health effects of environmental alterations caused by development programs and other human activities in both developing and developed areas. Case studies will contextualize methodological information and incorporate a global perspective on environmentally mediated diseases in diverse populations. Topics include: management; population change; toxics; energy development; air pollution; climate change; chemical use, etc. Also listed as Environ Sci, Policy, and Management C167. (F, Morelo-Froch)

162A. Public Health Microbiology. (3) Three hours of lecture per week. Prerequisites: One year each of college-level biology and chemistry. Introduction to properties of microorganisms; their relationships with humans in causing infectious diseases and in maintaining health. With 162L, satisfies most requirements for a laboratory course in microbiology. May be taken without 162L. (F, Buehring, Danielson)

162L. Public Health Microbiology Laboratory. (1) Two hours of laboratory per week. Prerequisites: One year each of college-level biology and chemistry. Laboratory to accompany 162A. Must be taken concurrently. (F, I, J. Loretz)

C170B. Advanced Toxicology. (3,4) Three to four hours of lecture per week. Prerequisites: Nutritional Science and Toxicology 110 for three-unit option. The application of toxicology to answer questions about safety and human health. A case-study approach. Participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals, including drugs and environmental contaminants. Discussion of current topics of controversy in the field of toxicology. Also listed as Nutritional Science and Toxicology C119. (SP. P. Smith)

172. Introduction to Pharmacology and Toxicology. (3) Three hours of lecture per week. Prerequisites: Organic chemistry; upper division biological science. Principles of drug action and toxicology. Brief survey of major groups of chemicals used in therapy. (SP, Wei)

200. Current issues in Public Health Ethics: Research and Practice. (3) Two hours of lecture per week. Prerequisites: Graduate standing. This course seeks to examine the ethical challenges inherent in public health practice, research, and policy. It covers a range of ethical issues in public health, as well as ethical implications of different public health dilemmas. The cases considered include treating homeless people with TB, rationing medical care in the United States, conduct of field studies of maternal and child health in Africa, managed care policies and setting priorities, the death penalty and capital punishment, and the societal implications of genetic information. The goal is to provide students with tools to develop an analytical methodology that has practical application for their future work. (SP, Halpern)

200C. Public Health Core Breadth Seminar. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing. This course is designed to provide students with an introduction to the field of public health and a basic understanding of the contributions of the environmental, behavioral, and management and policy sciences to the practice of public health. Course topics include: the interactions of biology, behavior and environment; the community and population-based nature of public health; health disparities; the relationships among health care access, cost and quality of care; the performance of the health care delivery system; the concepts of risk and burden of disease; the importance of ecological and life course perspectives; and theory-based approaches to problem identification and practice. By the conclusion of this course, students will be able to discuss and describe seminal concepts and approaches, as well as current theories and methods utilized by social and behavioral scientists to address key public health problems. (F, Potts)

200D. Applied Public Health: Putting Theory Into Practice. (2) Two hours of lecture per week. Prerequisites: 142, 200C, and 250A. This course trains students in applied public health through discussion, lectures, guest speakers, cases, and field trips. Students integrate learning from previous courses with work experience. Cases emphasize current national/global public health issues and practice. At course completion, students will be able to: demonstrate the capacity to identify, research, and respond to real-life public health challenges; work effectively and efficiently in problem-solving groups; professionally present the results of their efforts in large groups for feedback and evaluation. (SP, Braith, Winkelman)

201E. Public Health Interventions: Theory, Practice, and Research. (2,3) Two hours of seminar per week. Prerequisites: Previous experience with health interventions and doctoral student status or consent of instructor. This course will examine factors that affect health and the interventions that can promote health. Students examine the determinants of health and the theory, history, types, ethics, and politics of public health interventions. Community level interventions and multidisciplinary approaches receive special emphasis. The course stresses a rigorous critique of the outcomes of interventions and practical health to find the major steps that can take an active role in the design and conduct of the course. (SP, Neusheuer, Syme)

201F. Community-Based Research and Interventions to Promote Health: Theory and Methods. (3) Three hours of lecture per week. Prerequisites: Graduating senior status. This course will introduce students to a variety of community-based interventions that affect health and the interventions that can promote health. Students examine the determinants of health and the history, types, ethics, and politics of public health interventions. Community level interventions and multidisciplinary approaches receive special emphasis. The course stresses a rigorous critique of the outcomes of interventions and practical health to find the major steps that can take an active role in the design and conduct of the course. (SP, Neusheuer, Syme)
202G. Advanced Alcohol Research Seminar. (1) Course may be repeated for credit. Two hours of seminar per week. This course is an advanced alcohol research seminar focusing on presentations made by alcohol research scientists nationally and internationally, as well as pre- and post-doctoral fellows, and students. It is designed to provide a breadth of understanding in the field. The seminar also includes sessions focused on methodological issues in alcohol research, and has a research ethics component covering a number of sessions. (F,SP) Cherpitel, Kaskutas

203A. Theories of Health and Social Behavior. (3) Three hours of lecture per week. Prerequisites: Background in social and behavioral sciences. Consent of instructor. This course will present a survey of theoretical perspectives and their application in analyzing the behavioral, social, and cultural dimensions of community health problems. An emphasis is placed on critically evaluating theories and weaving together particular theories for addressing complex health problems and mounting effective community-based intervention programs. (F) Herd

204A. Mass Communications in Public Health. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. This course will provide an overview of the role of media in advancing public health goals. Reviews mass media theories in general, and theories of the news media in particular. Provides an in-depth understanding of media advocacy as a strategy for using news media and paid advertising to support policy initiatives at the local, state, and federal levels. Examples are drawn from a range of public health issues. (F) Staff

204D. Community Organization and Community Building for Health. (3,4) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will emphasize community organization and community building as major approaches to creating healthy communities and changing social change. It further examines the role of public health practitioners as change agents, stressing in particular the values and ethical issues that arise within the context of diverse and multicultural communities. Both advancement of theoretical knowledge and the development of skills in applying such knowledge in the areas of community organization and community building will be stressed. This is a Service Learning Course, and students wishing to undertake a concurrent field project can earn an additional optional unit of credit. (F) Minkler

204E. Multicultural Competence in Public Health. (3) Three hours of lecture per week. Prerequisites: Enrollment in Multicultural Health Specialty area or consent of instructor. This class will focus on developing a functional understanding of cultural competence and will initiate the student in developing culturally competent skills. Understanding the basic assumptions of the group, discovering one’s own cultural biases, and learning an approach which values diversity, as well as respects cultural issues related to approach and process. Will enable the student to use cultural knowledge as a public health practitioner. This course will achieve these goals through a combined approach of lecture, discussion, and class presentations of a case study. (F) Staff

204F. Culture, Public Health Practice, and Eliminating Health Disparities: From Ideas to Action in the 21st Century, (3) Three hours of lecture/discussion per week. Prerequisites: Graduate students in Public Health or by consent of instructor. Public health practice and policy is responsive to the terms culture, cultural competence, race, racism, ethnic, and health disparities. Understanding these terms, their complex meanings and current application in public health practice is the focus of this course. By the end of the course students will be able to: describe the concepts of culture, race, racism, ethnic, cultural competence, cultural humility, health disparities and their use in public health theory and practice; identify and describe the application of these concepts in local public health practice; and demonstrate an understanding of these concepts and their application in public health practice through the completion of a mini-project. (SP) Simmons

205. Program Planning, Development, and Evaluation. (3) Three hours of lecture/discussion per week. Prerequisites: Public health students. Basic elements and considerations in planning health programs; case in which governments in developing countries design and implement policies and programs that affect food and nutritional issues faced by women, children, and adolescents in developing countries. Theories and concepts will be studied in the context of public policies, services, and advocacy. (F,SP)

206. Food and Nutrition Policies and Programs. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course will address the role of nutrition in health and disease. It will also address how and why food policies and programs interact and influence one another. (SP) Fernald

206C. Nutritional Epidemiology. (3) Four hours of lecture per week. This course develops the ability to read published nutritional epidemiology research critically. Basic research design and epidemiology will be reviewed, and issues in design, analysis, and interpretation unique to nutritional epidemiology will be addressed. This will be accomplished by readings and study questions, lecture/discussions, and a term project. (SP) Fernald

206D. Food and Nutrition Programs and Policies in Developing Countries. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course will explore nutrition programs and policies affecting food production and access to affordable, nutritious diets. This course will be designed to meet the needs of students who seek to understand the role that nutrition plays in international development. (SP) Fernald

210. Maternal and Child Health Specialty Area Core Course. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. The core course in maternal and child health will provide an integrated approach to issues, programs, and policies in the field of maternal and child health. The following concepts will be explored and addressed in depth: (1) the foundation of maternal and child health, including an overview of the field, history, and foundation of MCH practice and programs, and attention to financing of these programs; (2) MCH data sources, uses of data, and related issues; and (3) the role of various MCH stakeholders. In addition, maternal and child health programs facing women, children, and adolescents will be explored, including how and why these are distributed in these populations. (SP) Fernald

210C. Needs Assessment in Maternal and Child Health. (3) Two hours of seminar/discussion per week. Prerequisites: Consent of instructor. Students will apply knowledge and skills acquired in 210B. The purpose of this course is to provide a conceptual and practical understanding of health needs and the strategies that can be used for conducting needs assessments in maternal and child health. The course is aimed at students who anticipate working in situations that involve measuring health problems in communities, planning for health services, and advocating or making decisions about the distribution of community health resources. (F) Guendelman

210D. Reproductive and Perinatal Epidemiology. (2) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will be designed to meet the needs of students who seek to understand the role that nutrition plays in international development. (SP) Fernald

211. Health and Human Rights. (3) Three hours of lecture/discussion per week. The course examines the origins of health and human rights concerns and outlines a conceptual basis for human rights among health professionals. It provides an overview of the epidemiology of human rights violations worldwide and an analysis of the psychology of abuse. The course considers the role of health professionals in documenting the health and social consequences of human rights violations and war; (2) treating survivors of abuse; (3) addressing specific human rights concerns for women and children; (4) identifying the impact of health policy on human rights; and (5) participat in human rights education and advocacy. (SP) Eskenazi

212A. International Maternal and Child Health. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Assessment of health status of women and children worldwide; special emphasis on
problems, policies, and programs affecting MCH and family planning in developing countries. (F) Miller

212D. Global Health Core Course. (3) Three hours of lecture per week. Prerequisites: Qualified seniors may enroll with prior consent of instructor. This is a graduate seminar on selected topics interwoven with national health designed to introduce students to key areas of the specialty. The course will review the main contributors to the global burden of disease and discuss health systems and policy implications for the future. The primary goal of the course is to transfer knowledge and experiences that will prepare public health students to evaluate international health problems and to prepare themselves for a career in international health work. The focus is on developing countries with the most challenging large-scale health problems, where physical and systems infrastructure as well as human resources are poorly developed. The course provides students with the tools to make their own assessments. Complex ethical and political issues pervading this field will also be addressed throughout the course. (SP) Campbell, Hosang, Potts, Prata, Walsh

212E. Private Sector Health Services in Developing Countries. (2) Two hours of lecture per week. Prerequisites: Graduate standing. This course will serve students intending to conduct research, policy work, or public health practice within the private sector in developing countries. Topics covered will include definition and typology of private sector in various countries, theories of private sector regulation, motivation, and responses to public policy. The role of the private sector in health service delivery will also be addressed. A significant portion of the course will be devoted to preparing students for a career in this field. The course is designed to familiarize students who have little or no experience in conducting qualitative research with the perspectives, methods, and techniques required to complete research in this area. The course will cover some of the methods of data collections used in the conduct of qualitative inquiries, the analysis of textual data, the write-up of findings and recommendations, and the development of a qualitative research proposal. While learning about qualitative methods, students will gain an understanding of the qualitative research literature on a specific topic, and they will integrate findings from a variety of qualitative studies on a research question of their own choice. (SP) Miller

213A. Family Planning, Regulation Change, and Health. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Course examines the determinants of family size and the role played by contraception, voluntary sterilization, and abortion in the transition from large to small families. It looks at the factors controlling access to fertility regulation in developed and developing countries and discusses the factors that have made successful family-planning programs as well as those that have not generated controversy. The course looks at the relationship between family planning and the health of women and children at the role of family size in economic development and environmental problems. It looks at advances in family planning, organization, and promotion of services and discusses ethical issues facing providers. (F) Campbell, Potts, Prata

214C. Current Issues in Women’s Health. (2) Two hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Provides an opportunity to discuss major historical and contemporary issues in women’s health throughout the life span; to present ways to integrate women’s health issues into the broader study and practice of public health; to examine women’s health care controversies and propose possible solutions. (SP) Staff

216A. Biological Embedding of Social Factors. (2) Two hours of lecture per week. This is an interdisciplinary seminar that adopts a broad biological perspective of health and behavior. This class will emphasize the interconnected and multidirectional relationships between biology, behavior, and the social environment. This course will be conducted as a seminar series (with a focus on biological processes). We will investigate the assertion that biological, psychological, and social processes interact over a lifetime to influence health and vulnerability to disease (a developmental epigenetic perspective). Rather than focusing on “if” social factors can influence health and disease we will focus on “how” social factors may regulate/change biological measures. Three very general topics of interest will be development of disease, neurodevelopment and gene-environment interactions as they relate to behavior. Topics such as constraints/ plasticity and behavior, genetic determinism, vulnerability, psychopathology, and environment will be included. (SP) Hammond, McKone

217C. Aging and Public Health. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. The purpose of this course is to introduce students to the epidemiology, practice, and current trends in the area of aging and public health. Topics will include: the epidemiology of aging; race, class, gender, and aging; nutrition and the elderly; and current health initiatives for addressing the aging demographic. Themes throughout the course and linking a number of the topics covered will include: the diversity of the elderly; the importance of co-morbidity and functional health status in this population; and wider environmental contexts in which aging takes place; and the influence of public- and private-sector policies on health and health-related behavior in the elderly. The course will be designed to be interactive, incorporating student participation by presentations by prominent Bay Area researchers in the areas of geriatrics and gerontology. This is the core course for the School of Public Health specialty in aging and public health. (F) Santanar

217D. Biological and Public Health Aspects of Alzheimer’s Disease. (3) Two hours of seminar/discussion per week. Prerequisites: Graduate standing or consent of instructor. Background in biological sciences is expected. This course will survey the field of Alzheimer’s disease and related neurodegenerative diseases that have implications for public health by reading original research papers in the fields of medicine, neuroscience, and epidemiology. The course will begin with a historical perspective, a survey of the major analytic concepts in clinical and neuropathological features. Subsequent classes will cover the genetics and molecular biology of the disease, as well as biomarkers, epidemiology, and treatment of Alzheimer’s disease. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes and the development of effective disease prevention and treatment. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes and late-onset neurodegenerative factors. Also listed as Neuroscience C217D. (SP) Jagust

218B. Evaluation of Health and Social Programs. (3) Three hours of lecture/discussion per week. The study of concepts, methods, rationale, and uses of evaluation research as they apply to health and social programs. (SP) Staff

218C. Advanced Program and Policy Evaluation. (3) Three hours of lecture/discussion per week. Prerequisites: Introductory course on program evaluation such as 218B. This is an advanced course on evaluation of health and social programs. Students who have already completed an introductory course on program evaluation (such as 218B), and it will be especially useful to doctoral students intending to pursue careers as policy analysts or teachers of evaluation. By the completion of this course, students will be able to: (1) identify the stages of development of evaluation theory and describe the important differences in the theories that were developed in each stage; (2) describe the evaluation theories of at least eight leading evaluative theorists and discuss the strengths and weaknesses of each approach; (3) identify the theoretical perspectives that have influenced the implementation of these theories; and (4) distinguish among the following types of meta-evaluations: an evaluation audit, a critical review and re-analysis, a research synthesis, and a meta-analysis; (5) conduct a meta-evaluation; and (6) evaluate peers in a professional setting. (SP) Rundall

219A. Advanced Methods: Qualitative Research. (3) Three hours of lecture/discussion per week. Prerequisites: Doctoral student in public health or a related discipline, or consent of instructor. An overview of the methods and techniques used in the collection of data in various aspects of qualitative research. (SP) Staff

219C. Community-Based Participatory Research in Public Health. (3-4) Three hours of lecture/discussion per week. The goal of this seminar is to provide doctoral and advanced master’s degree students with an understanding of theories, principles, and strategies of community-based participatory research (CBPR) and related traditions. The advantages and limitations of this approach, skills necessary for effective application, and theory-driven case studies will be explored. Students undertaking a service-learning project applying CBPR may receive a 4th unit. (SP) Miller

219D. Social and Behavioral Health Research: Introduction to Survey Methodology. (3) Three hours of lecture/discussion per week. Prerequisites: Program Research Design. Students will learn to design and implement a research project with a thorough tool kit for designing survey questionnaires and for implementing telephone, face-to-face, and mail surveys. The three-hour weekly class sessions are designed to develop knowledge, skills, and understanding with a case study approach used to complement each topical lecture. An SPSS laboratory is also given during each semester. The course is elective for Health and Behavioral Students and required for the multi-disciplinary program and other tracks in the school (including UCSF, e.g., nurses in their Ph.D. programs) have often enrolled as well. By the end of the semester, students will have designed, as their class project, a research project including a study design rationale, aims and hypotheses, data collection methods and measures, human subjects consent form, codebook and analysis plan. (F) Karriker-Jaffe

219E. Introduction to Qualitative Methods in Public Health Research. (3) Three hours of lecture/discussions per week. Prerequisites: Program Research Design. This course is designed to familiarize students who have little or no experience in conducting qualitative research with the perspectives, methods, and techniques required to complete research in this area. The course will cover some of the methods of data collections used in the conduct of qualitative inquiries, the analysis of textual data, the write-up of findings and recommendations, and the development of a qualitative research proposal. While learning about qualitative methods, students will gain an understanding of the qualitative research literature on a specific topic, and they will integrate findings from a variety of qualitative studies on a research question of their own choice. (SP) Miller

220. Health Policy Decision-Making. (3) Three hours of lecture/discussions per week. Introduction to federal-level health policy and analysis of government capacities in addressing major health problems. The course explores structural impediments to reform in the US, regulatory decision-making—particularly decision making under conditions of uncertainty, and basic tools of policy analysis. Students will apply these tools in a seminar paper that analyzes a proposed or existing health policy or program. (F) Sentell

220A. Health Politics and Policy. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. An introduction to some of the major analytic concepts in political science and their applications to current health care policy. Topics include: power, interests, conflict, equity, liberty, paternalism, security, rights, rules, and representation. (SP) Hapin

220C. Health Risk Assessment, Regulation, and Policy. (4) Four hours of lecture per week. Prerequisites: 250A, 270A-270B recommended. Graduate standing. This course introduces the basic scientific principles and framework for understanding occupational and environmental health risk assessment and describes the policy context in which decisions to manage environmental health risks are made. The course presents the quantitative methods used to assess the health risks associatced with exposure to toxic chemicals, focusing on the four major components of risk assessment: hazard identification, dose-response assessment, exposure assessment, and risk characterization. Students use these tools to develop potential risk management options for an environmental health problem. The course also provides a broad overview of occupational and environmental health regulations with consideration of how hazard, risk, cost, and benefit are integrated. Current political controversies about environmental policy will be examined. (F) Hammond, McKone

220D. Health Policy Advocacy. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. A graduate semi
nahr in practice-based means to advocate for health policy. This course focuses on data based strategies using persuasive written and oral communication skills necessary to improve the health status of populations. Students will develop research, organization, and coalition-building skills necessary to produce an effective advocacy campaign. The course identifies the structures involved in the making of policy and demonstrates the use of appropriate channels and technologies to influence health policy change. (F) Snyder

221. Mental Health Policies, Programs, and Services. (2) Two hours of lecture/discussion per week. Prerequisites: Consent of standing or consent of instructor. This course provides a foundation for understanding mental illness and mental health services and the evolution and current state of our thinking about these issues. Mental illness frequently involves mental illness and addresses their frequency of occurrence, and it addresses the social disability from mental illness and the societal response to mental illness. It also considers treatments, services, effectiveness, quality of care, and financing, as well as considering financing, legal issues, and special concerns and services for children and youth. In addition, the course provides an overview of the knowledge base on mental illness, epidemiology, policies, programs, and services as it presents major controversies and highlights the best available evidence. (SP) Snowden

221A. The City and Health: Emphasis on Oakland. (3) Two hours discussion per week. Prerequisites: Consent of standing or consent of instructor. Formerly 221A-221B. A history and analysis of the relationship of urban development and the health of its populations. The problems of diversity, politics, participation, governance, economic development, poverty, housing, community infrastructures, planning, and policy will be emphasized. Healthy cities as an organizing framework for the "new public health" will be used as a model of coping with health and related issues. Looks at factors which can make Oakland a healthy city. Key community leaders will participate. Students will do active studies in local programs as part of the city’s and community’s agenda. (SP) Duhl

222A. Health Care Technology Policy. (2) Two hours of lecture per week. The course examines the public policy institutions and processes influencing innovation, regulation, and payment for biotechnology, pharmaceuticals, and medical devices. Topics include: technology transfer and patent law, the Food and Drug Administration (FDA) review for safety and efficacy, insurance coverage policy at the Center for Medicare and Medicaid Services (CMS), coverage, payment, and benefit by private insurers for new technology, and cost-effectiveness analysis. Special topics vary from year to year. Examples and case studies are drawn from all three of the technology sectors. (F) Robinson

223A. Introduction to the Health Care System. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. This is an advanced course in health management. It is intended for master’s degree students in the Division of Health Policy and Management who have already completed their field work. The course consists of analysis and discussion of cases highlighting complex managerial issues in health care delivery, E-health, biotechnology, and other health-related organizations. The cases used provide the student with an understanding of real-world management problems, choices, and information. The key task for the student is to develop solutions to problems and propose actions using the information in the case. Students will also draw on the student’s knowledge of health organizations and current health policies and the skills the student has acquired in operational management, strategic management, ethical analysis, health politics and policies, health law and policy analysis, and interpersonal communication. (F) Rundall

223C. Strategic Management and the Organization of Health Services. (3) Three hours of lecture per week. Prerequisites: Business Administration 205 or 224A and 223A or consent of instructor. Students are required to have knowledge of the health services system. The overall purpose of this course is to assist the student in managing health care organizations from a strategic perspective. This is accomplished by systematically addressing system-wide, organization-wide, group-and individual-level issues in strategy formulation, content, implementation, and performance. Emphasis is placed upon the management of change. The seminar will account for a wide variety of internal and external factors to improve organization and system performance in meeting the health needs of individuals and communities. Emphasis is also placed on the development and implementation of strategies to meet multiple stakeholder demands, with particular attention given to continuous quality improvement/total quality management approaches. The course will cover a wide variety of health care organizations including physician group practices, health systems, hospitals, HMOs, suppliers, pharmaceutical and biotech companies. The course builds on Business Administration 205: Organizational Behavior and 223A: Medical-Legal Organization. (SP) Shortell, Oxendine

223D. Foundations of Health Policy and Management. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing in Health Policy and Management or consent of instructor. This course is designed as a first semester seminar for master’s students in the Division of Health Policy and Management. The purposes of this course are fourfold: (1) to provide an overview of the U.S. medical and health care systems; (2) to provide an introduction to basic concepts and competencies in health policy analysis and health management; (3) to provide internship preparation and career development activities; and (4) to provide opportunities to develop relationships with first- and second-year HPM students and with faculty, alumni, and healthcare leaders. (F) Oxendine, Solomon

223E. Capstone Seminar in Health Policy and Management. (2) Two hours of seminar per week. Prerequisites: Graduate standing in HPM and completion of 297 internship. This course is an integrative seminar that builds on the core curriculum requirements of the school year. It is designed for master’s degree students advancing to candidacy. After sharing their internship experiences and the impact on career decisions, the students are required to draw on situations from their internships in which they have learned by leading fellow seminar participants in facilitated discussions, culminating in a specific management recommendation or policy position. Students will gain exposure to a range of HPM issues based on the experiences of their peers. Each student is also required to produce a 20-page paper and prepare and deliver a formal presentation to seminar participants that will address an HPM topic of interest that has been selected by the student and approved by the course faculty and the student’s academic advisor. Suggested formats for the paper are a policy or strategic management analysis, but other options may be proposed and approved by the instructor. (SP) Solomon

224A. Health Care Organizations and Management. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Introduction to the health care sector, focusing on theories of management, organizations, and environments as they relate to the administration of health services. Cases, simulation, and structured experiences will be used. (SP) Bloom

224C. Advanced Health Care Organizations and Environments. (3) Three hours seminar per week. Prerequisites: 224A or consent of instructor. This course examines major theories and frameworks for analyzing health care organizations. Emphasis is given to the application and testing of theories in the health care sector. Theories to be examined include bureaucracy, contingency theory, culture and climate, resource dependence, institutional theory, and theories of change and innovation. The seminar will rely on extensive student participation. (F) Bloom

224D. Doctoral Seminar: Organizational Analysis of the Health Care Sector. (3) Three hours seminar per week. Prerequisites: One doctoral-level organizational theory course or consent of instructor. This course examines major theories and frameworks for analyzing health care organizations. Emphasis is given to the application and testing of theories in the health care sector. Population ecology, transaction-cost economics, strategic management, and network theories are examined. The seminar will rely on extensive student participation. (SP) Shortell

225. Legal Basis for Health Care Delivery. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. No legal experience or training required. This is a course for nonlawyers in legal issues in the organization and delivery of health care, including regulation, fraud and abuse, physician arrangements, Medicare, managed care, privacy, malpractice, patient dumping, health care organizations, contracts, etc. Students will study the interaction of law, policy, and health care delivery. Case studies, including an extended contract negotiation and medical-legal cases, will focus on the process and content of legal issues in complex but common health care decision-making situations. (SP) Lipman

226. Health Economics. (3) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: Graduate standing or consent of instructor. This course introduces students to the economics of health and health care. In addition to familiarizing students with the language and tools of health economics, the course will provide an overview of key institutional features of the health care system as well as important research findings in the field. These will be used to evaluate the economic logic and incentives in compelling proposals for health care reform. (F) Robinson

226B. Microeconomics of Health Care Policy. (3) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: A recent graduate course in microeconomics, a second-level undergraduate course in microeconomics, or consent of instructor. An economic and policy analysis of the health care system. It examines integration of the health care delivery system and the impact of competition and regulation on providers and patients. Alternative models of health care reform are presented and analyzed. (F) Dow

226C. Public Health and the Economy. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. An introduction to the literature that suggests that the performance of a regional economy affects the health of the population it supports. Controversies in the theoretical and empirical literature are discussed. The implications of the work for public health practice are discussed. (SP) Catalano, Dow

226D. Global Health Economics. (3) Three hours of lecture per week. Prerequisites: Graduate standing and knowledge of health policy and consent of instructor. This class is a survey of different health care systems in western and eastern Europe, the former Soviet Union, Canada, Japan, Taiwan, and China. Other countries will be added to meet the interests of students. The course examines the structure and financing of the health system in each country and assesses the effectiveness, efficacy, and equity of each system. Students will make a presentation on a country’s health system and write a paper. (F) Schneller

226E. Advanced Health Economics. (3) Three hours of discussion per week. Prerequisites: Doctoral standing or consent of instructor. This course
analyzes the health care system through the lens of institutional economics and organization theory. It interprets alternative forms of market contracting and organizational arrangements as methods of resource management and examines the role they play in the evolving health insurance and health care systems. Theoretical topics include vertical integration, relational contracting and network bargaining, principal-agent relations, the dynamic capabilities of firms, reputation as a guarantee of quality, and the implications of non-profit, for-profit, and public ownership. Applied topics include the implications of delivery system reorganization, organizational chains and franchising, multispecialty medical groups, and health maintenance organizations. (SP) Robinson

227A. Health Care Finance. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing. (SP) Schiff This course covers finance and strategic financial management in the health services and products industry, including provider organizations, insurance firms, and biopharmaceutical and medical device companies. Cases are used to apply the financial analysis and planning skills learned in the course. Topic areas include: financial statement analysis, pricing and service decisions, debt financing, venture capital, risk and return, capital budgeting and project risk assessment, mergers and acquisitions, vertical and horizontal integration. (SP) Robinson, Safer

227B. Advanced Health Care Finance. (2) Two hours of lecture/discussion per week. Prerequisites: 227A. This course in finance and strategic management covers financial and strategic financial management in the health services and products industry, including provider organizations (e.g., hospitals, physician groups), insurance firms, and biopharmaceutical and medical device companies. Cases are used to apply the financial analysis and planning skills learned in the course. Topic areas include: financial statement analysis, pricing and service decisions, debt financing, venture capital, risk and return, capital budgeting and project risk assessment, for-profit and nonprofit organization, mergers and acquisitions. (F) Robinson

229. Public Health and the Law. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. No previous legal experience or training necessary. This is an introductory course for nonlawyers in selected aspects of the law relating to public health. Major topics include legal principles and legal reasoning, recurring legal issues, and the use of law to advance a public health agenda. Emphasis is given to helping students recognize when they encounter law-related problems in their professional careers. The course is intended for students in all divisions of the School of Public Health. (F) Ashe, Smith

230. Advanced Health Politics. (3) Three hours of lecture/discussion per week. Prerequisites: 220A or consent of instructor. Critical analysis of selected issues in health policy. Topics include: political ideology and health policy, interest group politics in health, Marxist and materialist interpretation of health policy, and the politics of health care technology, implementation, bureaucracy, and health professions. (F) Halpin

231A. Analytic Methods for Health Policy and Management. (3) Three hours of lecture per week. Prerequisites: 142 or equivalent (basic probability and statistics). This course provides an overview of analytic methods that master’s students in health policy and management should be familiar with. Topics include: linear regression, limited dependent variable models, such as logit, discriminant analysis and analysis of complex surveys (with weighted and clustered sampling), and quasi-experimental causal analysis. The course complements 245, with an emphasis on enabling non-statisticians to interpret and critique applications in the HPM literature. (SP) Dow

233. Seminar on Place and Health. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor for MPH students. The purpose of this course is to help doctoral and advanced MPH students to explore and understand the literature that describes and attempts to explain spatial variation in illness. The implications of the literature for public health practice will be emphasized. The course is organized as a seminar. The instructor will present a taxonomy of the literature and review the controversies in the field. Students will then present literature of special interest to them, with the instructor helping them locate the piece in the taxonomy and explore the implications of the work for public health practice. (SP) Catalano

C240A. Biostatistical Methods: Advanced Categorical Data Analysis. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Statistics 200B (may be taken concurrently). This course investigates methods for discrete data collected in public health, clinical and biological studies. Lectures topics include proportions and counts, contingency tables, Poisson regression and log-linear models, models for polytomous data and generalized linear models. Computing techniques, numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications. Also listed as Statistics C245A. Offered odd-numbered years. (F) Staff

C240B. Biostatistical Methods: Survival Analysis and Causality. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Statistics 200B (may be taken concurrently). Analysis of survival time data using parametric and non-parametric models, hypothesis testing, and methods for competing risks. Topics include: marginal estimation of a survival function, estimation of a generalized multivariate linear regression model (allowing missing covariates and/or outcomes), estimation of a multiplicative intensity model (such as Cox proportional hazards model) and estimation of causal parameters assuming marginal structural models. General theory for developing locally efficient estimators of the parameters of interest in censored data models. Computing techniques, numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications. Also listed as Statistics C245B. Offered odd-numbered years. (SP) van der Laan

C240C. Biostatistical Methods: Computational Statistics with Applications in Biology and Medicine. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Statistics 200A-200B (may be taken concurrently) or consent of instructor. This course provides an introduction to computational statistics, with emphasis on statistical methods and software for high-dimensional inference problems in biology and medicine. Topics include: numerical and graphical data summaries, loss-based estimation (regression, classification, density estimation), bootstrap, Monte Carlo, clustering, multiple testing, resampling, hidden Markov models, in silico experiments. Also listed as Statistics C245C. Offered even-numbered years. (F) Dudoit

C240D. Biostatistical Methods: Applications of Statistics to Genetics and Molecular Biology. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Statistics 200A-200B (may be taken concurrently) or consent of instructor. This course provides an introduction to statistical methods that have been developed for understanding statistical genetics and molecular biology. Biological questions of interest include: modeling meiosis, genetic mapping, nucleotide and protein sequence analysis, DNA microarrays, and other high-dimensional data analysis. Related statistical topics include: numerical and graphical summaries of data, stochastic processes, experimental design, loss-based estimation, resampling, regression, and simulation studies. The course discusses statistical computing resources for the analysis of biological data, with emphasis on the R language and environment for statistical computing and related software packages (bioconductor.org). It also provides an introduction to basic notions in genetics and molecular biology and involves the critical reading of articles related to statistical analyses in the biological and medical sciences. Also listed as Statistics C245D. Offered even-numbered years. (SP) Dudoit

241. Statistical Analysis of Categorical Data. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 142 or consent of instructor. This course presents the fundamental concepts and statistical methods used in the design and analysis of multifactor population-based cohort and case-control studies, including matching. Measures of association, causal inference, confounding interaction, introduction to regression, including logistic regression. (SP) Jewell

242A. Biometrical Data Analysis—Pathological Incomplete Data and Pattern Recognition. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 142 and 145 or equivalent or consent of instructor. Survey of classical methods; mixture, clustered, grouped, incomplete, Cox-model, and truncated data simulation and analysis. Offered odd-numbered years. (SP) Tarter

242B. Biometrical Data Analysis—Model Free Curve Estimation. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 142 and 145 or equivalent, or consent of instructor. Generalized histograms and Gram-Charlier expansions; series inclusion and stopping rules, multiplier and weighting techniques, nonparametric regression, variance reduction, smoothing, and equiprobability contour estimation methods and other graphical methods. Offered even-numbered years. (SP) Tarter

242C. Longitudinal Data Analysis. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 142, 145, 241 or equivalent courses in basic statistics, linear and logistic regression. The course covers the statistical issues surrounding estimating the effects of data using on subjects followed through time. The course emphasizes a regression model approach and discusses disease incidence modeling and both continuous outcome data/linear regression and nonparametric models using non-linear models (e.g., logistic and Poisson). The primary focus is from the analysis side, but mathematical intuition behind the procedures will also be discussed. The statistical/mathematical material includes some survival analysis, linear models, logistic and Poisson regression, and matrix algebra for statistics. The course will conclude with an introduction to recently developed causal regression methods (e.g., marginal structural models). Time permitting, serially correlated data on ecological units will also be discussed. Also listed as Statistics C247C. Offered even-numbered years. (SP) Hubbard, Jewell

243A-243B. Special Topics in Biostatistics. (1-3-1-1) Four hours of lecture/discussion per week. Prerequisites: 142, 145, 241 or equivalent courses in basic statistics. Current issues in biostatistics research. Topics will vary from term to term depending on student demand and faculty availability. Possible topics are: bioassay, survival analysis, meta-analysis, clinical trials, consulting, covariance structure models, bootstrap and jackknife methods, artificial intelligence techniques in biostatistics. (F,S) Staff

243C. Information Systems in Public Health. (2) Two hours of lecture/discussion per week. An introduction to new information systems, such as the Internet and interactive television, and how they may be used to improve human health. The course has three objectives: (1) to familiarize students with new information technologies and how these technologies will be used by public health professionals, consumers, health care providers, and others; and (3) to study related ethical and legal issues such as privacy, confidentiality, and liability. Students will also learn about statistical consulting, covariance structure models, bootstrap and jackknife methods, artificial intelligence techniques in biostatistics. (F,S) Staff

243D. Special Topics in Biostatistics: Adaptive Designs. (3) Three hours of lecture per week. Prerequisites: Prior biostatistics or statistics course or consent of instructor. This course presents the theory and statistical methods for analyzing data generated by adaptive group sequential designs. It also considers the theory and design of studies in which the design of each phase of the study is determined by the data from the previously completed phases. Also lists as Statistics C245D. Offered fall, spring. (SP) Brant
erating experiment (i.e., causal effect of the treat ment). Topics to be covered include: sequential testing, adaptive sample size, martingale estimating functions, and targeted maximum likelihood estimation for adaptive designs, targeted Bayesian learning for adaptive designs, martingale theory for the analysis of estimators for adaptive designs. (F) van der Laan

244A. Stochastic Processes in Biology and Health. (3) Three hours of lecture per week. Prerequisites: A course in linear algebra or consent of instructor. Discrete time processes. Topics include: probability generating functions; branching process, random walk, and numerical methods; and applications in biology and health. Offered odd-numbered years. (F) Chang

250C. Epidemiology Theory. (4) Four hours of lecture and two hours of practicum per week. Prerequisites: 241, 245, 250B, or consent of instructor. This course is a continuation of 250B. The course covers advanced analytical techniques in the majority of the course. The readings from this course are drawn primarily from advanced epidemiology textbooks (Kleinbaum, Roth man, and Miettinen). The course is intended to provide a firm foundation for students who will subsequently enroll in 250C. (F) Colford

251A. Practicum in Epidemiologic Methods I. (4) Three hours of lecture per week. Prerequisites: 240D or consent of instructor. Statistical computer-intensive methods have become an integral part of the analysis of cross-sectional and longitudinal studies involving the collection of genomic data such as gene expression, single nucleotide polymorphism, and com parative genomic hybridization measurements across the whole genome. These data structures are extremely high dimensional and the characteristics (parameters of interest) of the population are complex (high dimensional). Classification and survival analysis are often subject to censoring. In addition, one often aims to learn and test many univariate characteristics simultaneously (e.g., regression coefficient for each gene). This course will present: (1) a unified loss-function-based approach to learning from the data such characteristics which relies on general cross-validation methodology to select among candidate estimators; (2) resampling-based multiple testing methods; (3) methods for handling high-dimensional data; (4) graphical models embedded into a statistical framework. Also listed as Statistics C249C. (F) van der Laan

248L. Epidemiologic Methods Laboratory. (2) Two hours of lecture per week. Prerequisites: 248 or consent of instructor. This course will emphasize realistic applications of data analysis methods and is aimed at, though not limited to, students taking 252L. Instruc tion will focus on advanced R techniques specifically applied to epidemiologic data through analysis of data sets and to compose a proposal for data analysis. Matched pairs analysis, maximum likelihood estimation, and survival analysis techniques. (SP) Selvin

250A. Epidemiologic Methods I. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 142 (may be taken concurrently). Principles and methods discussed include: study planning, selection, and definition of cases and controls; sampling, data collection, analysis, and inference. Discussion session provides an opportunity to apply methods to real-world data and to discuss issues presented in lec tures. (F,SP) Reingold, Smith

250B. Epidemiologic Methods II. (4) Four hours of lecture and two hours of laboratory per week. Prerequisites: 250A or an equivalent introductory course in epidemiology or advanced degree (M.D., Ph.D., D.V.M.) in a biomedical field. This course is intended as an intermediate level course in the field of epidemiology. Topics include: causal inference; measurement of disease rates; inferential reasoning; and research study designs including ecologic, case-control, cohort, intervention trials, and meta-analytic designs (potential sources of bias, confounding, and effect modification in each research design are ex plored in detail). Emphasis includes introducing assumptions underlying case-control studies and the practical issues that relate to implementation of case-control studies; and further exploration of the quantitative aspects of bias, confounding, propensity scores, and measurement error. An introduction to the theory of ecological studies and mixed model analysis also are provided. Readings are primarily from the epidemiology methods literature, and problems are based on the evaluation of published articles. The course is divided into a series of modules that range in length from 1-4 weeks: causal inference/models of causality; epidemiologic measures of disease occurrence and their inter-relationships; standardization and valid ity—general consideration; misclassification/measure ment error; confounding; matching; case-control studies; ecological studies. (SP) Tager

251C. Causal Inference and Meta-Analysis in Epidemiology. (2) Two hours of lecture per week. Prerequisites: 250A; 250C or consent of instructor. Students will learn the second year of the epidemiology/biostatistics Master's of Public Health Program. (Students from other programs welcome.) This course will review the theoretical aspects of causal inference, literature review, and meta-analysis, but its focus will be more on the practical aspects of these topics that are not commonly found in textbooks or presented in classes on epidemiologic theory. It is hoped that the student develops the day-to-day skills necessary to conduct a well-documented, accurate, and thorough review of epidemiologic literature. (F) A. Smith, Steinmaus

251D. Applied Epidemiology Using R. (2) Two hours of lecture per week. This is an intensive, one-semester introduction to the R programming language for epidemiology. R is a powerful open-source platform (Mac OS, Linux, and Windows, etc.), versatile, and powerful program for statistical computing and graphics (r-project.org). This course will focus on: core basics of organizing, managing, and analyzing epidemiologic data; basic epidemiologic applications; introduction to R programming; and basic R graphics. (SP) Aragon

252. Epidemiological Analysis. (3) Three hours of lecture per week. Prerequisites: 245, 250A, or consent of instructor. The course consists of two distinct components: (1) advanced treatment of epidemiologic methods: matched data, spatial analysis, logistic and Poisson regression models; (2) survival analysis, by D. Meier estimation and Cox model. The course is intended to provide skills necessary to develop and implement analytic methods required for the level of research problems. The material covered in the computer laboratory will generally correspond to the topics covered in the class meetings. Offered even-numbered years. (F) Piazza

252A. Applied Sampling and Survey Design and Analysis. (3) Two hours of lecture and two hours of laboratory per week. This course will cover the basic principles and methods of sampling and survey design. The weekly lecture will cover the principles of sampling and include a discussion of the case studies contained in the class reader. The computer laboratory will consist of exercises that develop skills for using standard sampling software packages and for drawing samples from a variety of populations. The material covered in the computer laboratory will generally correspond to the topics covered in the class meetings. Offered every other year. (F) Colford
sion for discussion/review of programming. Newly added topics include comparison to traditional models, data simulation, and Directed Acyclic Graphs. In two-parallel sessions, three will define and integrate research questions. Grades based on participation, written study critiques, programming, in-class evaluation, and class presentation. (F) Mortimer, Neugebauer

253A. Topics in Disease Surveillance. (2) Two hours of session per week. Prerequisites: Graduate standing or with consent of instructor. Ways of doing surveillance for infectious and non-infectious diseases; how the reasons for doing surveillance determine the system selected; and how to evaluate whether or not a given surveillance system is needed. The data needed for various goals. The impact of various biases on the conclusions derived from surveillance data will be explored. Offered even-numbered years. (SP) Rutherford

253B. Epidemiology and Control of Infectious Diseases. (3) Three hours of lecture/discussion per week. Prerequisites: Prior degree or courses in biometrical sciences and consent of instructor. A discussion of major infectious diseases with emphasis on disease surveillance, investigative procedures, and prevention programs. Emphasis is on current problems in health agencies at a state, national, and international level. (SP) Reingold

253C. An Overview of the AIDS Epidemic. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. The need to understand the changing transmission, and natural history of AIDS and the opportunities which exist to slow the spread of HIV, especially the dynamics and the timing of possible preventive measures. This course covers the cost of care and prevention and analysis of the social and political barriers that influence the allotment of resources. The course will use examples of government and private sector responses to the care of People with AIDS, and compare the relative measures from the USA and around the world. (F) Potts

253D. Behavior and Policy Science in HIV Treatment and Prevention. (3) Three hours of lecture per week. This course will integrate various social science disciplines and analyze these perspectives to problems of HIV treatment and prevention, particularly in the developing world. Throughout the academic term, students will apply knowledge of behavioral science, epidemiology, and critical thinking while applying these skills to the analysis of data and the evaluation of HIV-related treatment and prevention interventions, including policy interventions. Course requirements include the preparation of written assignments, participation in class discussions, and attendance during the last three class sessions. (SP) Ekstrand, Morin

253E. Ethics and Public Health in an Age of Catastrophe. (3) Three hours of lecture per week. Prerequisites: Consent to course. The nature of ethical issues around the care of the sick and the crisis of natural and man-made disasters and in identifying the factors that contribute to these effects. The goal of this course is to enhance course participation, knowledge, and critical issues surrounding health responses to catastrophe to better manage the moral and logistical challenges inherent in catastrophes. (SP) Aragon, Kayman

254. Occupational and Environmental Epidemiology. (3) Three hours of session per week. Prerequisites: 254A. Epidemiology of occupational hazards for designing, conducting, and interpreting epidemiological studies of persons occupationally or environmentally exposed to chemical and physical agents. (SP) Aragon

254A. Social Epidemiology. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. 142, 145, and 250A-250B recommended. This course is designed to introduce students to the field of social epidemiology and its role in understanding the social determinants of population health and to pursue this understanding in two ways. First, we will engage in a systematic and selected overview of literature in the field covering the history and development of the field of social epidemiology, theoretical perspectives, major topical areas, operationalizations, and controversies related to theory, research methods, and research findings. Three principles will be emphasized throughout the course: (1) the ecological model, (2) the life-course approach, and (3) causality. These principles will provide a framework for the critical analysis of scholarly journal articles and the synthesis of information across content areas. This is a breadth course intended to provide an overview of the field of social epidemiology. Students should have a basic understanding of statistical methods, and be familiar with causation and confounding. (SP) Nuri-Jeter

255C. Mental Health and Psychopathology. (3) Three hours of seminar per week. Prerequisites: Open to students with an interest in research and not required for course certification. The doctoral seminar is designed to provide an understanding of the complex (and often interactive) individual and environmental conditions that increase the risk of psychopathology in individuals across the life span. We will start by learning about general concepts important to an understanding of psychopathology and prevention of psychopathology, including the “biopsychosocial” model, and different levels of preventive interventions. For each different area of psychopathology, we will consider: (a) the core feature of disorder; (b) key theory and empirical evidence regarding etiology and course, (c) the factors that influence the range of risk and protective factors on the individual, family, and community level; and (c) the implications of etiological understanding for public health efforts to prevent and treat mental health disorders. (F) Potts

256. Molecular and Genetic Epidemiology. (4) Two hours of lecture, one hour of laboratory (wet/comp), journal review per week. Prerequisites: College-level biology course or consent of instructor. This introductory course will cover basic concepts in human population genetics and molecular biology relevant to understanding approaches to molecular and genetic epidemiology. Study designs to identify disease genes will be covered. The application of biomarkers to define exposures and outcomes in epidemiologic research will be explored. Computer and wet laboratory work will provide hands-on experience with molecular epidemiology for the isolation, identification, and characterization of infectious agents; laboratory safety; and gene and protein functions. Module 2: Application of molecular methods to the identification and characterization of infectious agents, vectors, and hosts. (SP) Loretz, Sensabaugh

257. Disaster Epidemiology. Methods and Applications. (2) Two hours of lecture per week. This course is an introduction to the field of epidemiology. Epidemiologists play an important role in assessing the health effects of natural and man-made disasters and in identifying the factors that contribute to these effects. The emphasis in this course will be on the application of epidemiologic methods to the study of the public health consequences of disasters with the purpose of identifying lessons learned from previous disasters; high-risk populations, and the need for such a course to be a part of a response; and identifying methodological issues for future work. (SP) Aragon, Enanoria

257B. Public Health Preparedness and Emergency Response. (3) Two hours of lecture/discussion per week. Prerequisites: Completion of one semester of graduate public health curriculum or in public health practice. This one semester course is an intensive introduction to public health emergency preparedness and response, and covers the following topic areas: the role of public health in disasters, natural disasters and pandemics, terrorism, public health preparedness and response, detecting and monitoring public health threats, post-disaster sampling, surveys, rapid needs assessments, public health emergency incident management system, international and national structures and models, infectious disease emergency readiness, environmental health emergency readiness, mental health emergency readiness, special needs and vulnerable populations, essentials of public health leadership during a disaster, essentials of crisis risk communication, essentials of investigating outbreaks, disaster medicine and mass casualty care, and personal and community disaster preparedness. (F) Aragon

258. Epidemiology of Neoplastic Diseases. (3) Three hours of lecture per week. Prerequisites: Prior degree or courses in biomedical sciences and consent of instructor. The goal of this course is to enhance course participation, knowledge, and critical issues surrounding health responses to catastrophe to better manage the moral and logistical challenges inherent in catastrophes. We will discuss the many obstacles to establishing and sustaining research projects, such as poor infrastructure, insufficient financial and material

259. Practical Applications of Epidemiologic Methods in Developing Countries. (3) Three hours of lecture per week. Prerequisites: 259A or 250. For students with a basic understanding of epidemiology, biostatistics, and tumor biology. An introduction to the epidemiology of some major site-specific cancers, use of molecular epidemiological approaches to the study of their causation, and implementation will be discussed. (F) Buffler

260A-260B. Principles of Infectious Diseases. (4/4) Four hours of lecture per week. Prerequisites: Upper division course preparation in biology. This course presents general principles of microbial interactions with hosts that result in disease. Common themes are developed using examples of viral, bacterial, and parasitological pathogens that exemplify mechanisms of infectious disease. The epidemiological, pathogenetic, and host response, diagnosis, treatment, and control will be presented for each infectious disease discussed. (SP) Riley, Swartzberg

280C. Infectious Disease Laboratory. (2.4) Two hours of lecture and six hours of laboratory per week. This course is split into two modules, each seven and one-half weeks. Students may take a single module for 2 units. Prerequisites: 260A or consent of instructor. This module is intended to provide an introduction to clinical and research laboratory techniques used in diagnostic identification, identification, and characterization of infectious agents; laboratory safety; and gene and protein functions. Module 2: Application of molecular methods to the identification and characterization of infectious agents, vectors, and hosts. (SP) Loretz, Sensabaugh

280E. Molecular Epidemiology of Infectious Diseases. (2-3) Three hours of lecture and one-half hour of discussion per week. Prerequisites: 150A. The course will cover general principles and practical approaches to study design, implementation, and execution of molecular techniques to address infectious disease epidemiologic problems. It is designed for students with experience in the laboratory or in epidemiology but not both. The course will introduce the use of molecular techniques in outbreak investigations, characterization of dynamic disease transmission, identifying vehicles, and quantifying attributable risks in sporadic infections, refining data stratification to assist case-control studies, distinguishing pathovars from non-pathogenic variants of organisms, doing surveillance, and identifying genetic determinants of disease transmissions. three units if a five-page paper completed. (F) Riley

280F. Infectious Disease Research in Developing Countries. (2) Two hours of seminar per week. Prerequisites: Consent to course. The objective of this course is to provide M.P.H. and Ph.D. students with an appreciation and understanding of local issues involved in conducting scientific, laboratory-based investigation in developing countries. We will discuss the many obstacles to establishing and sustaining research projects, such as poor infrastructure, insufficient financial and material
resources, and lack of scientific information and inter-
action. More importantly, we will identify innovative 
solutions to overcoming these obstacles. The first 
half of the course will consist of presentations by U.S. 
and developing countries investigators who have long-
term research experience in Latin America, Asia, 
and Africa. We will also discuss related issues such 
as ethical considerations, equitable collaborations, 
research capacity strengthening. During the second 
half of the course, students will present their papers 
on topics of their choice. Offered alternate years. 
(SP) Harris

261. Advanced Medical Virology. (3-4) Four hours 
of lecture/discussion per week. Prerequisites: Consent 
of instructor. Offered alternate years. Focus on various 
host factors that play critical role in viral diseases of 
medical importance. Four units of credit given to 
doctoral students who write a research 
proposal on a topic other than that proposed for 
their dissertation. (SP) Liu

262. Molecular and Cellular Basis of Bacterial 
Pathogenesis. (3) Three hours of lecture/discussion 
per week and one hour of literature review. Prereq-
quisites: 260A, 260B, or consent of instructor. This 
course for graduate students will explore the molecu-
lar and cellular basis of bacterial pathogenesis. The 
emphasis will be on model bacterial pathogens of 
mammals. The course also will include some aspects 
of bacterial genetics and physiology, immune response 
to infection, and the use of host factors that aid 
pathogens in overcoming immune defense actions. 
Taught concurrently with 260A. Students enrolled in 
262a will be required to attend a weekly discussion 
of the primary literature, both current and classic. Each 
student will be required to present one paper. (SP) Portnoy

264. Current Issues in Infectious Diseases. (2) One 
hour of lecture and one hour of discussion per week. 
Prerequisites: Second-year Infectious Diseases MPH 
students only. Formerly 264A-264B. Examination of 
scientific, social, and policy dimensions of issues 
involving infectious diseases. Students select one 
topic for in-depth analysis and present findings in 
a public forum. Topics vary from year to year. (F) Sensabaugh

265. Molecular Parasitology. (3) Course may be 
repeated for credit. Three hours of lecture and two 
hours of discussion for 10 weeks. Prerequisites: Upper 
division courses in molecular biology, parasitology, 
biochemistry, immunology, microbiology, or consent 
of instructor. Familiarity with reading primary research 
literature is recommended. Advanced course in the 
molecular aspects of parasitic biology. Topics include 
genetics, biochemistry, and genomics. For each para-
site, the following areas will be covered: biology; dis-
ease spectrum; epidemiology; pathogenesis, immu-
nology, and treatment. The course will have an 
focus on “state-of-the-art” research in relation to molecu-
lar mechanisms of pathogenesis, parasite adapta-
tions for survival within the host, and strategies for 
drug and vaccine development and disease control 
and prevention. Course content will rely heavily on 
current literature. (F) Harris

266. Viruses and Human Cancer. (3) One hour of 
lecture and one hour of discussion of assigned read-
ings per week. Prerequisites: Course in basic viro-
logy or microbiology. Topics include: the molecular 
biology of tumor viruses; mechanisms of viral car-
cinogenesis; in vitro vs. in vivo characteristics of 
virally transformed cells; the epidemiology, pathology, diag-
nosis, treatment, and prevention of virally caused can-
cers; problems of proving the etiology of virally caused 
cancers. A term paper or grant proposal is required. 
Offered even-numbered years. (SP) Buehring

268A. Foodborne diseases. (2) One and one-half 
hours of lecture per week. Prerequisites: Consent of 
instructor. Current awareness of foodborne ill-
nesses, clinical manifestations, and the interactions 
between etiological agents (pathogens and non-
pathogens) and human hosts. We will cover pathogens 
that are the most frequently associated with food-
borne illness including bacterial and viral pathogens, 
such as Salmonella, E. coli, hepatitis viruses and 
Noroviruses. The course also will study non-pathogen 
agents, such as heavy metal, pesticide, and toxic chemicals. 
Furthermore, the course will discuss how to identify the etiological agents in out-
breaks and possible measures that can be taken to 
minimize the risk to the public including vaccines and 
education. Finally, we will explore the social and 
ecological issues involved in the food production, distrib-
ution, and consumption that contribute to foodborne 
diseases. (F) Lu

267B. Characterization of Airborne Contaminants. 
(3) Three hours of lecture/discussion per week. Prereq-
quisites: Graduate standing in environmental health 
sciences or consent of instructor. Principles under-
lying the use of air monitoring methods in industry 
and the environment. Topics include: behavior of gases, 
vapors, and aerosols; mechanisms of absorption 
and elimination of inhaled toxicants; methods for 
measuring of airborne chemicals and particles. (SP) Hammond

267D. Health Impact Assessment. (3) Three hours of 
lecture per week. Health Impact Assessment (HIA) 
refers to a diverse set of analytic and communicative 
practices that aim to inform policy-making and social deci-
sions in order to improve the environmental, eco-
omic, and social conditions required for optimal 
public health. This course provides an introduc-
tion to HIA with a focus on the need for and application 
of HIA to land use, transportation and planning 
development. The objectives of the course include: 
understanding and comparing the range of practices 
used to conduct Health Impact Assessments in the U.S. 
and internationally; identifying the opportunities 
and obstacles for using the environmental impact as-
seessment as vehicles for health assessment and devel-
opment and application of environmental health 
assessment tools to inform decision-making as part 
of a class project. (SP) Seto

268C. Industrial Hygiene: Professional Practices. 
(3) Six hours of lecture/laboratory or discussion per 
week. Must be taken on a satisfactory/unsatisfactory 
basis. Prerequisites: 267A or 267B. Familiarizes stu-
dents with the professional skills practiced by industrial 
hygienists in management, labor, and government 
programs. Introduces students to the occupational 
environment in selected industries. (SP) Plog

269C. Occupational Biomechanics. (4) Three 
hours of lecture/labor per week. Overview of ergonomics 
and occupational biomechanics. Course begins with 
study of lower extremity and back loading at work, measurement of force and 
posture, models for risk assessment, anthro-
pometry applied to task and workstation design, tool 
and equipment design, and various aspects of 
ergonomics programs. Students will conduct a detailed job analysis 
design and a workplace intervention. Also listed as 
Biomeengineering C279. (SP) Rempel

269D. Ergonomics Seminar. (2) Two hours of lecture 
per week. Prerequisites: 268C or consent of instructor. 
Graduate standing and consent of instructor are 
required. Topics to be covered are muscle, tendon, and joint 
bio Mechanics, material handling models, mechanisms 
of injury, hand tool design, and instrumentation issues. 
Students will prepare critical reviews of recent pub-
lications and design an engineering intervention to 
reduce work-related risk factors. Offered alternate years. (F) Rempel

269E. Current Topics in Environmental Medicine. 
(2) Three hours of lecture per week. Prerequisites: 
Graduate standing in environmental medicine. 
Topics will cover those aspects of behavioral science 
that are the most frequently associated with food-
borne illness including bacterial and viral pathogens, 
such as Salmonella, E. coli, hepatitis viruses and 
Noroviruses. The course also will study non-pathogen 
agents, such as heavy metal, pesticide, and toxic chemicals. 
Furthermore, the course will discuss how to identify the etiological agents in out-
breaks and possible measures that can be taken to 
minimize the risk to the public including vaccines and 
education. Finally, we will explore the social and 
ecological issues involved in the food production, distrib-
ution, and consumption that contribute to foodborne 
diseases. (F) Lu

269F. Science and Policy for Environment and 
Health. (3) Three hours of lecture per week. Prereq-
quisites: Graduate standing or consent of instructor.
Scientific knowledge and analyses are important to the development of public policies that address the impact of the environment on health. The limits of expert opinion and uncertainties in scientific research result in significant challenges in applying science to answer critical questions. This course critically examines how scientific information is used in policy development, and discusses the current issues and research result that shape the agenda of scientific inquiry. On successful completion of the course you should possess the following skills and knowledge:

1. a basic understanding of the fundamental geographic and cartographic concepts that underlie GIS;
2. working knowledge of the GIS software package that runs in a Windows environment;
3. introductory knowledge of past, present, and possible future applications of GIS for health and environmental studies. (SP) Jerrett

272A. Geographic Information Science and Remote Sensing in Public Health. (3) Three hours of lecture per week. Prerequisites: 250C and 241. Using published studies as examples, we will focus on epidemiologic methods as they arise in the study of environmental health and workplace. Selected topics include: the validity of exposure assessment for both community-based and workplace-based studies, specific forms of selection bias (e.g., healthy worker survivor effect), measurement error (e.g., exposure misclassification), time varying confounding, and analytical models to model exposure-response (e.g., person-years, causal models, spatial letter grade or a passing grade will be based on occupational epidemiology. Grades will be based on a project paper. (SP) Buffler, Eisen, Hammond

274. Geographic Information Systems and Remote Sensing. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course is designed to familiarize students with applications of Geographic Information Systems (GIS) and remote sensing (RS) in Public Health. Selected case studies will be presented in the course on methodologies and approaches; emerging paradigms including the precautionary principle and environmental justice; and key elements of risk assessment and cost-benefit analysis. (SP) Kyle

271F. Public Health and the Built Environment. (2,3) Two hours of lecture per week. Prerequisites: Graduate student standing. An interdisciplinary course on the built environment and health. The U.S. and other developed, as well as developing, countries are facing increasingly lethal and costly epidemics of acute and chronic diseases related to land use and built environment decisions. While the hazards presented by air and water pollution are well recognized for acute, infectious diseases, the health effects of chronic illnesses, the only now increasing recognition of the hazards presented by building and community designs that fail to recognize human health. Land use and built environment decisions impact every age group, social, and racial minority. The range of change from the ancient (motor vehicle trauma) to the long term (obesity, cancer, heart disease). These decisions have as their bases economic, financial, insurance, housing, and other components of the built environment, and the students in the sessions will analyze each of these factors and related disease end-points. (F) Jackson

271G. Global Environmental Change for Health Scientists. (1,2) Two hours of lecture and one hour of discussion per week. Prerequisites: An introductory course in epidemiology is strongly suggested. The course will first provide a basic foundation in the physical and societal basis of climate change, including atmospheric science, feedbacks, carbon cycling, and the sources and trends of human and natural greenhouse gas emissions. Forecasts of future climate, and their uncertainties, will be discussed, enunciating the role of potential responses of human health. We will explore epidemiologic, risk assessment, and statistical methods appropriate for understanding the impact of climate on health in different populations. Reviews of current literature and disorder estimates of avoidable and attributable risk. The public health implications, positive and negative, of society’s efforts to mitigate and adapt to climate change will be elaborated, including discussions of ethical, political, and economic aspects. The one-unit version ends before the spring break. Students in the two-unit version will continue and be responsible for formal class presentations summarizing and critiquing the evidence based on a health outcome related to climate change. (SP) Jerrett, Smith

272A. Geographic Information Science for Public and Environmental Health. (4) Two hours of lecture and two hours of laboratory per week. Prerequisites: Introductory statistics course or equivalent. Geographic information systems (GIS) have emerged as an important tool for performing health and environmental analyses. GIS is generally seen as a spatial analysis system for the organization, storage, retrieval, and analysis of location and other spatial attributes. GIS also encompasses the organizational structure of geographic information, and hardware and software to support spatial analysis. For many health and social scientists, GIS has evolved into a new lens for viewing their work. The course will provide students with an understanding of GIS software and expand their basic understanding of inquiry. On successful completion of the course you should possess the following skills and knowledge:

1. an understanding of the care issues for future health care practitioners; and ethical conduct of research in biomedical sciences. Issues pertinent to standards and responsibilities of research conduct, authorship and publication practices, peer review, and the conflict of interest, collaboration, and use of animals and humans in research will be defined and explored. The legal and regulatory structures, definitions of misconduct and misreporting, and investigations will be presented. Offended odd-numbered years. (F) Stephens

282. Topics in the History of Medicine and Public Health. (2,3) Course may be repeated for credit with consent of instructor. Two hours of seminar per week. Prerequisites: Consent of instructor. A series of lectures and discussions will focus on the health care organization and financing, quality assurance, clinical practice guidelines, clinical preventive services and health care delivery for the underserved and to describe the role of the non-traditional physician in health care organizations. (SP) Rutherford, Seward

288A. Preventive Medicine Residency Seminar: Public Health Practice. (1) Two hours of seminar per week for eight weeks. Prerequisites: MD or medical student. This seminar is required for preventive medicine residents but is also open to other physicians and medical students interested in preventive medicine and public health practice. It provides an overview of preventive medicine practice, especially those areas covered by the American Board of Preventive Medicine examination in public health and general preventive Medicine. The objectives of the seminar are to review basic organization, principles, and practices of public health as they relate to public health practice in governmental public health agencies, non-governmental organizations, private practice, and as a practice physician in secondary subspecialties within public health practice. (F) Rutherford, Seward

288C. Preventive Medicine Residency Seminar: Managed Care and Preventive Medicine. (1) Two hours of seminar per week for eight weeks. Prerequisites: MD or medical student. This seminar is required for preventive medicine residents but is also open to other physicians and medical students interested in preventive medicine and public health practice. It provides an overview of preventive medicine practice, especially those areas covered by the American Board of Preventive Medicine examination in public health and general preventive Medicine. The objectives of the seminar are to review basic organization, principles, and practices of public health as they relate to public health practice in governmental public health agencies, non-governmental organizations, private practice, and as a practice physician in secondary subspecialties within public health practice. (F) Rutherford, Seward

288D. Preventive Medicine Residency Seminar: Public Administration. (1) Two hours of seminar per week for eight weeks. Prerequisites: MD or medical student. This seminar is required for preventive medicine residents but is also open to other physicians and medical students interested in preventive medicine and public health practice. It provides an overview of preventive medicine practice, especially those areas covered by the American Board of Preventive Medicine examination in public health and general preventive Medicine. The objectives of the seminar are to review basic organization, principles, and practices of public health as they relate to public health practice in governmental public health agencies, non-governmental organizations, private practice, and as a practice physician in secondary subspecialties within public health practice. (F) Rutherford, Seward

C285. Traffic Safety and Injury Control. (3) Students will receive no credit C285 after taking Civil and Environmental Engineering C291A. Three hours of lecture per week. Prerequisites: Civil and Environmental Engineering C291A. This course applies principles of engineering, behavioral science, and vision science to preventing traffic collisions and subsequent injury. A systematic approach to traffic crash presentation of the course, and will include: (1) human behavior, vehicle design, and roadway design as interacting approaches to preventing traffic crashes, and (2) vehicle and roadway designs as preventive measures to prevent injury when a collision has occurred. Implications of intelligent transportation system concepts for traffic safety will be discussed throughout the course. Also listed as Civil and Environmental Engineering C295. (SP) Ragland

C285A. Public Health Injury Prevention and Control. (2) Two hours of lecture per week. Prerequisites: Consent of instructor. Injuries are a major and often neglected health problem with substantial human and economic costs. Injuries are the leading cause of death from the first year of life to the leading cause of lost potential years of life. This course provides an historical and conceptual framework within which to consider injuries (both intentional and unintentional) as social and political problems. Through review of epidemiology and intervention studies, coursework will consider the causes and consequences of traumatic injury within developmental, behavioral, and economic contexts. A key emphasis is placed on alternative strategies for injury prevention and on the relative benefits of intervention at different levels. (F) Ragland

R prefix=course satisfies R&C requirement
B prefix=language course for business majors
H prefix=honors course
AC suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
Recipient of Distinguished Teaching Award
cine examination in public health and preventive medi-
cine. The objectives of this seminar are to review basic
principles and practices of public administration as they
relate to the management of a governmental public
health agency and to describe the role of
preventive medicine as a leader and admin-
istrator in those agencies. (SP) Rutgers, Seward
290. Health Issues Seminars. (1-4) Course may be
repeal ed for credit. One to four hours of seminar per
week. A discussion of current developments and issues in
public health interest of faculty and students of the
department as a whole. Content varies from semester to
semester depending upon current issues and interest.
(F,SP) Staff
291A. Preparation for Public Health Practice. (1)
Two hours of workshop per week. Must be taken on a
satisfactory/unsatisfactory basis. Formerly 291A. A series
of skills-based workshops designed to intro-
duce the student to specialized skills needed in the
public health workplace. These workshops are designed
to complement the core curriculum of the School of
Public Health and are selected based on regular feed-
back from faculty, public health practitioners, and stu-
dents. Workshop facilitators include consultants, CHP
field supervisors, and public health practitioners with
expertise in the subject. This course or series of work-
shops is open to all M.P.H. and Dr.Ph. students. The
student selects two-hour workshops to total one unit
equal to 15 hours of class time, plus read-
ings that are assigned for many of the workshops.
Workshop topics have included: writing for publica-
tion, moderating focus groups, human resources man-
agement, legislative policy and advocacy, negotiation,
evaluation, tools for financial planning, scientific grant
writing, leadership, oral presentations, strategic plan-
ing, cultural competency, time management, and budg-
etting. (F,SP) Field Studies Program Staff
291B. Public Health Internship Preparation Sem-
ninar. (1) Two hours of seminar every other week. Must
be taken on a satisfactory/unsatisfactory basis. Seminar
provides an area of concentration-specific prepara-
tion for M.P.H. students. Emphasis on interactive
activities with second-year students. (F) Field Studies
Program Staff
292. Seminars for M.P.H. Students. (1-4) Course
may be repeated for credit. One to four hours of sem-
inar per week. Sections 1-8 to be graded on a letter-
grade basis. Sections 9-16 to be graded on a passed/
not passed basis. Current topics and special issues in
the health field. (F,SP) Staff
293. Doctoral Seminar. (1-4) Course may be
repeal ed for credit. One to four hours of seminar per
week. Sections 9-16 to be graded on a letter-
grade basis. Sections 9-16 to be graded on a passed/not
passed basis. Discussion and analysis of dissertation
research projects, as well as of conceptual and meth-
ological problems in planning and conducting health re-
search. (F,SP) Staff
294. Post-Residency Seminar. (2-3) One hour of
seminar per week. Prerequisites: Supervised resi-
dency in public health practice. Comparative analy-
sis of field residency experiences as related to academic
work, theoretical debates on issues in public health,
and professional practice in the student’s chosen
public health discipline. Emphasis upon integration of
concepts and skills as this furthers each student’s professional
development. (F,SP) Staff
295. Seminars. (1-4) Course may be repeated
for credit. One to four hours of seminar per week. (F,SP)
Staff
296. Special Study. (1-10) Course may be
repeal ed for credit. Independent study. Designed to per-
mit any qualified graduate student to pursue special study
under the direction of a faculty member. (F,SP) Staff
297. Field Study in Public Health. (1-12) Must
be taken on a satisfactory/unsatisfactory basis. Super-
vised experience relevant to specific aspects of public
health in off-campus organizations for graduate stu-
dents. Regular individual meetings with faculty spon-
sor and written reports required. (F,SP) Staff
298. Group Study. (1-8) Course may be
repeal ed for credit. Independent study. Sections 1-30 to
be graded on a satisfactory/unsatisfactory basis. Sec-
tions 31-77 to be graded on a letter-grade basis. (F,SP)
Staff
299. Independent Research. (1-12) Course may be
repeal ed for credit. Sections 1-8 to be graded on a
letter-grade basis. Sections 9-16 to be graded on a
passed/not passed basis. Independent study and
research. (F,SP) Staff
Professional Courses
300. Instructional Techniques in Biostatistics. (2)
Course may be repeated for credit. Two hour-
lecture per quarter. Must be taken on a satisfactory/unsat-
isfactory basis. Discussion and practice of techniques
in teaching biostatistics as applied to public health
topics. (F,SP) Lab</value>
Graduate Courses

Through an examination of domestic and international policy areas, graduate courses enable students to conduct systematic work in the design and assessment of public policies. Among the skills emphasized are those facilitating the application of political, organizational, economic, quantitative, and legal analysis to the full range of the policy process—from policy initiation through policy adoption, implementation, and evaluation. By developing these skills, students should find their strengthened analytical capabilities of direct use when applied to their own field of concentration.

Master in Public Policy

Assistant Dean for Academic Affairs: Martha Chavez
Associate Director of Admissions and Student Affairs: Jahna LiBré
Admissions and Student Affairs Adviser: Carla Vaccarezza

The M.P.P. degree is earned in a two-year, full-time program consisting of a core curriculum, a policy internship in the summer after completion of the first year, a second-year policy analysis project, and elective courses chosen from those available on the campus and at GSPP. The program emphasizes practical and applied dimensions of policy-making and implementation, encouraging students to develop skills in:

- defining policy issues to make them more intelligible to officials in the public, private, or nonprofit sector;
- providing a broader perspective for assessing policy alternatives;
- examining techniques for designing policy options and evaluating their social consequences; and
- developing strategies for the successful implementation of public policies once they have been adopted.

Given the relatively small class size, the School's approach to teaching emphasizes teamwork, cooperation, and interaction among students and with the faculty. Students work, either as individuals or in small groups, on real policy problems for real clients under close faculty supervision.

Coordinated Degree Programs with Other Berkeley Colleges and Schools

The M.P.P. may be earned in combination with an advanced degree from one of the following Berkeley schools and colleges under a coordinated program:

- M.P.P./J.D. with the UC Berkeley School of Law;
- M.P.P./M.H. in health policy and administration with the School of Public Health;
- M.P.P./M.A. in international and area studies with the College of Letters and Science; or
- M.P.P./M.S. with the College of Engineering.

Ph.D. in Public Policy

Faculty Chair, Ph.D. Program: John W. Ellwood, Ph.D.
Admissions and Student Affairs Adviser: Carla Vaccarezza

GSPP offers a doctoral degree program for students who seek careers in policy research with universities or research institutes. Usually only four to six students are admitted each year, including those admitted from the School's M.P.P. students. Non-GSPP applicants who seek a policy research career and have completed graduate work in a related field and who can demonstrate a strong interest in public policy development are also eligible for admission consideration.

The Ph.D. program emphasizes the generation of knowledge, theories, methodologies, and applications appropriate to the advancement of public policy analysis and management. Doctoral students pursue individually customized programs of study and typically work closely with school faculty members who share the student's subject matter interest.

Further Information

Brochures and information on admissions procedures and student financial assistance are available from the Goldman School of Public Policy, University of California, Berkeley, 2607 Hearst Avenue #7320, Berkeley, CA 94720-7320.

Lower Division Courses

96. Group Study in Public Policy. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Group study on selected public policy topics. Open to freshmen and sophomores. (F,SP) Staff

Upper Division Courses

101. Introduction to Public Policy Analysis. (4) Three hours of lecture and one hour of discussion per week. A systematic approach to evaluating and designing public policies. Combines theory and application to particular cases and problems. Diverse policy topics, including environmental, health, education, communications, safety, and arts policy issues, among others. (F,SP) Staff

103. Wealth and Poverty. (3) Three hours of lecture and one hour of discussion per week. This course is designed to provide students with a deeper understanding of the structure of political economy and of how the distribution of earnings, wealth, opportunity have been diverging in the United States and in other nations. It is also intended to provide insight into the political and public policy debates that have arisen in light of the divergence as well as possible means of reversing it. (SP) Reich

117AC. Race, Ethnicity, and Public Policy. (4) Three hours of lecture per week. The objective of this course is to use the tools and insights of policy analysis as a means of understanding the ways in which policies are shaped by and respond to issues of race, ethnicity, and cultural difference. The course is organized around a series of discrete policy problems involving issues of race and ethnicity. It is designed to allow for comparative analysis within and across cases to explore the variety of ways in which policy intersects with different racial and ethnic groups. This course satisfies the American Cultures requirement. (SP)

C142. Applied Econometrics and Public Policy. (4) Three hours of lecture and zero to one hour of discussion/laboratory per week. This course focuses on the sensible application of econometric methods to empirical economics and public policy analysis. It provides background on issues that arise when analyzing non-experimental social science data and a guide for tools that are useful for empirical research. By the end of the course, students will have an understanding of the types of research designs that can lead to convincing analysis and be comfortable working with large scale data sets. Also listed as Economics C142 and Political Science C131A. Staff

156. Program and Policy Design. (4) Three hours of seminar per week. Studio/laboratory in the design of nonphysical environments. Complements courses in policy analysis, public management, economics, and political science; especially intended to integrate elements of professional programs in public policy and related areas. Students will design, in groups and individually, programs and policies that create value in the public sector, including statutes, regulations, and implementation projects. Comparative reviews will feature invited guests. Undergraduate level of 256. (SP) O'Hare

157. Arts and Cultural Policy. (3) Three hours of lecture per week. Formerly 108. Survey of government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artists, audiences, and institutions. The course emphasizes the intersection of different social and economic roles of participants in the arts. Readings, field trips, and case discussion. One paper in two drafts required for undergraduate credit; graduate credit awarded for an additional short paper to be arranged and attendance at four advanced colloquia throughout the term. Undergraduate level of 257. (F) O’Hare

C164. Impact of Government Policies on Poor Children and Families. (4) This course may be applied to the Demography major. Three hours of lecture per week. Formerly 164. Examination of the impact of policies of state intervention and public benefit programs on poor children and families. Introduction to child and family policy, and study of specific issue areas, such as income transfer programs, housing, health care, and child abuse. Also listed as Demography C164. (F) Mauldon

179. Public Budgeting. (3) Three hours of lecture per week. Public sector budgeting incorporates many, perhaps most, of the skills of the public manager and analyst. The goal of this course is to develop and hone these skills. Using cases and readings from all levels of American government, the course will allow students to gain an appreciation of the impact and consequences of public sector budgeting, its processes and participants, and the potential impacts of various reforms. Undergraduate level of Public Policy 269. This course can be applied to the political science major. (SP) Ellwood

182. Environment and Technology from the Policy and Business Perspective. (4) Three hours of lecture and one hour of discussion per week. Most environmental issues involve technology, either in the role of “villain” or “hero.” This course uses the lens of specific technologies to survey environmental policy and management, with an emphasis on the complexities of policy-making with diverse interest groups. The class includes case studies, guest practitioners, and a group project in which students employ a range of analytic tools and frameworks in order to develop creative, effective, and actionable environmental solutions. (SP) Taylor

184. The Economics of Public Problem-Solving. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 100A or 101A or equivalent. Lectures will cover extensions and applications of microeconomic theory as required for use in practical public policy analysis. Case studies of the techniques will be drawn from diverse policy applications: welfare reform, national health insurance, public employment, energy shortage, public regulation and others. (F) Friedman

C184. Energy and Society. (4) Three hours of lecture and one hour of discussion per week. Energy sources, uses, and impacts: an introduction to the technology, politics, economics, and environmental effects of energy. Energy in contemporary society. Energy and well-being: energy in international perspective, origins, and character of energy crisis. Also listed as Energy and Resources Group C100. (F,SP) Kammen

190. Special Topics in Public Policy. (1-4) Course may be repeated for credit with consent of instructor. One to four hours of lecture per week depending on the topic. Course examines current problems and issues in the field of public policy. Topics may vary from year to year and will be announced at the beginning of the semester. Open to students from other departments. (F,SP)
198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Group study of a selected topic or topics in public policy. Meetings to be arranged.

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing.

200. Introduction to Policy Analysis. (4) Four hours of discussion per week. Prerequisites: Open only to students in the Graduate School of Public Policy. This introductory course will integrate various social science disciplines and apply these perspectives to problems of public policy. Throughout the academic term, students will apply knowledge of politics, economics, sociology, and quantitative methods in the analysis of case studies of policymakers and managers making decisions. Students learn to use the techniques of social science to understand and direct public policy. Course will include the preparation of a major paper for a client. (SP)

205. Advanced Policy Analysis. (6) Three hours of seminar per week. Prerequisites: Open only to majors who have completed the core curriculum. Each student will conduct three analyses of a major policy question. In this research, students will apply the interdisciplinary methods, approaches, and perspectives studied in the core curriculum. (SP)  

210A-210B. The Economics of Public Policy Analysis. (4, 4) Four hours of lecture and one hour of session per week. Prerequisites: Open only to students in the Graduate School of Public Policy. Theories of microeconomic behavior of consumers, producers, and bureaucrats are developed and applied to specific policy areas. Ability to analyze the effects of alternative policy actions in terms of: (1) the efficiency of resource allocation, and (2) equity is stressed. Policy areas are selected to show a broad range of current applications of theory and a variety of policy strategies. (F,SP) Friedman

220. Law and Public Policy. (4) Four hours of lecture/discussion per week. Prerequisites: Open only to students in the Graduate School of Public Policy. Focuses on legal aspects of public policy by exposing students to primary legal materials, including court decisions and legislative and administrative regulations. Skills of interpretation and legal draftsmanship are developed. Laws and legal cases dealing in specific policy areas and between law and policy are explored through case-centered studies. (F) Kirp

240A-240B. Decision Analysis, Modeling, and Quantitative Methods. (4, 4) Four hours of lecture per week. Prerequisites: Open only to students in the Graduate School of Public Policy. An integrated course on the use of quantitative techniques in public policy analysis: computer modeling and simulation, linear programming and optimization, decision theory, and statistical analyses of policy data. The student develops a facility in distilling the policy relevance of numbers through an analysis of case studies and statistical data sets. (F,SP)  

250. Political and Agency Management Aspects of Public Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Open only to students in the Graduate School of Public Policy. Formerly 230A. This course examines the political and organizational factors involved in developing new policies, choosing among alternatives, gaining acceptance, assuring implementation, and coping with unanticipated consequences. Materials will include case studies, theoretical, empirical, and interpretive works from several disciplines. (F) Ellwood  

Graduate Courses  

251. Microeconomic Organization and Policy Analysis. (3) Two hours of seminar and one hour of conference per week. Prerequisites: Business Administration 101B or Economics 204B or equivalent, and consent of instructor. Considers the development of public policy analyses based on microeconomic theories of organization, including collective demand mechanisms, behavioral theory of regulatory agencies and their specificity, and productivity in the public sector. (F) Friedman

252. International Economic Development Policy. (3) Three hours of lecture per week. Prerequisites: Minimum one semester of graduate-level microeconomics and statistics or consent of instructor. This course introduces students to the development policy world problems related to poverty, macroeconomic policy, and environmental sustainability. Methods of statistical, economic, and policy analysis are applied to a series of case studies. The course is designed to develop practical professional skills for application in the international arena. Also listed as Agricultural and Resource Economics C253. (F) De Janvry, Sadoulet, Bilger

256. Program and Policy Design. (3) Three hours of seminar per week. Formerly 206. Studio/lab/oratory in the design of non-physical environments. Complements courses in policy analysis, public management, economics, and political science and policy design intentions to integrate elements of professional programs in public policy and related areas. Students will design, in groups and individually, programs and policies that create value in the public sector, including statutes, regulations, and implementation projects. Compulsory reviews will feature invited guests. Graduation level of 156. (SP) O’Hare

257. Arts and Cultural Policy. (4) Three hours of lecture per week. Formerly 208. Survey of government programs that support the arts, including direct and indirect assistance; and the arts’ effect on the economy and the economy’s effect on the arts. Readings, field trips, and case discussions. One paper in two drafts required for undergraduate credit; graduate credit awarded for an additional short paper to be arranged and attendance at four advanced colloquia throughout the term. Graduate level of 157. (F,SP) O’Hare

259. Cost-Benefit Analysis. (3) Three hours of seminar per week. Prerequisites: Calculus and Intermediate Microeconomics or consent of instructor. This course discusses and critiques the conceptual foundations of public policy cost-benefit analysis and its applications in depth to some important applied scenarios such as endogenous prices of other commodities, methods to infer willingness-to-pay, valuation of life, uncertainty and the rate of discount. (F)  

260. Leadership, Management, and Social Change. (4) Four hours of lecture/discussion per week. Prerequisites: Open only to students in the Graduate School of Public Policy. Formerly 230B. This course examines the political, organizational, and social factors involved in delivering better services, implementing new policies, and empowering groups to more effectively achieve their own ends. Materials will include case studies, theoretical, empirical, and interpretive works from several disciplines. (F,SP) Reich

265. Policies for Youth. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. This seminar deals with the transition between youth and adulthood in advanced industrial societies. The seminar will consider some of the problems associated with this transition and efforts that are being made or might be made by public and private agencies to deal with these problems in the U.S. and abroad. (SP) Mauldon

268. Wealth and Poverty. (4) Three hours of lecture per week. Prerequisites: Graduate student or consent of instructor. This course is designed to provide students with a deeper understanding of why the distribution of income and wealth has been diverging in the U.S. and other nations. It is also intended to provide insight into the political and policy debates that have arisen in light of that divergence, and to give students the tools to understand and evaluate possibilities of political and policy response to it. The approach is interdisciplinary, drawing mainly upon research and concepts from economics, political science, and sociology. (SP) Reich

269. Public Budgeting. (4) Three hours of lecture/seminar per week. Prerequisites: 210A-210B or equivalent. This course considers the economics of urban housing and land markets from the viewpoints of investors, developers, public and private managers, and consumers. It considers the interactions between private action and public regulation—using cases and readings from a variety of American government, the course will allow the student to gain an understanding of the effects and consequences of public sector budgeting, its processes and principles, and the many forces that impact public reforms. Graduate level of Public Policy 179. (F) Ellwood

275. Housing and the Urban Economy. (3) Three hours of seminar per week. Prerequisites: 210A-210B or equivalent. This course considers the economics of urban housing and land markets from the viewpoints of investors, developers, public and private managers, and consumers. It considers the interactions between private action and public regulation—using cases and readings from a variety of American government, the course will allow the student to gain an understanding of the effects and consequences of public sector budgeting, its processes and principles, and the many forces that impact public reforms. Graduate level of Public Policy 179. (F) Ellwood

279. Research Design and Data Collection for Public Policy Analysis. (3) Three hours of seminar per week. Prerequisites: At least one semester of statistics. Policy analysis requires a sophisticated understanding of a variety of types of data. Empirical arguments and countermovements play a central role in policy debates. Quantitative analysis courses teach you how to analyze data; this course will teach you to strategies of data collection and principles for critically evaluating data collected by others. Topics include: measurement reliability and validity, questionnaire design, sampling, experimental and quasi-experimental program evaluation designs, qualitative research methods, and the politics of data in public policy. (SP) MacCoun

280. Ethics, Policy, and the Power of Ideas. (4) Three hours of seminar per week. Prerequisite: brings together two related frames for policy thinking: the ethics of policy—and what does it mean to do the right thing?; and the intervention of policy—that is, how policy paradigms emerge. The class will address the ethics of policies and the power of ideas. (SP) Kirp

282. Environment and Technology from the Policy and Business Perspective. (4) Three hours of lecture and one hour of discussion per week. Most environmental issues involve technology, either in the role of “villain” or “hero.” This course uses the lens of specific technologies to survey the politics and management, with an emphasis on the complexities of policy-making with diverse interest groups. The class includes case studies, guest practitioners, and a group project on which students choose topics that interest them and frameworks in which to develop creative,
Range Management
(College of Natural Resources, Interdepartmental Graduate Groups)

Office: 133 Mulford Hall, (510) 642-6410
gspm.berkeley.edu/gradprograms/grad_programs, mar.php
Chair: James Bartolome, Ph.D.

Professor
Barbara H. Allen-Diaz, Ph.D. Rangeland ecology and management (Environmental Science, Policy, and Management)
Reginald H. Barrett, Ph.D. Wildlife biology and management (Environmental Science, Policy, and Management)
James R. Barnard, Ph.D. Rangeland ecology and management (Environmental Science, Policy, and Management)
Steven R. Beissinger, Ph.D. Conservation biology (Environmental Science, Policy, and Management)
Donald L. Dahlsten, Ph.D. Forestry entomology; biological control (Environmental Science, Policy, and Management)
William E. Dietrich, Ph.D. Hillslope and fluvial geomorphology (Earth and Planetary Science)
Sally K. Fairly, Ph.D. Intervention policy, public land administration (Environmental Science, Policy, and Management)
Mary K. Firestone, Ph.D. Soil microbiology, nutrient cycling (Environmental Science, Policy, and Management)
Louise P. Fortmann, Ph.D. Natural resource sociology (Environmental Science, Policy, and Management)
Ivo H. McBride, Ph.D. Forest ecology (Environmental Science, Policy, and Management)
Dale R. McCullough, Ph.D. Rangeland ecology and management (Environmental Science, Policy, and Management)
Jeffrey M. Rembert, Ph.D. Environmental policy and management (Environmental Science, Policy, and Management)
Willard R. Gardner (Environmental Science, Policy, and Management Emeritus), Ph.D.
Harold F. Heady (Environmental Science, Policy, and Management Emeritus), Ph.D.
John A. Helms (Environmental Science, Policy, and Management Emeritus), Ph.D.
William Z. Lidicker (Integrative Biology Emeritus), Ph.D.
Robert E. Martin (Environmental Science, Policy, and Management Emeritus), Ph.D.
Thelma E. Rowell (Integrative Biology Emeritus), Ph.D.

Associate Professors
John Barlow, Ph.D. Grassland community ecology (Environmental Science, Policy, and Management)
Carla D’Antonio, Ph.D. Plant population biology (Integrative Biology)
Lynn Huntsinger, Ph.D. Rangeland ecology and conservation (Environmental Science, Policy, and Management)
John D. Radke, Ph.D. Geography, geographical information systems in landscape analysis and environmental planning (Landscape Architecture and Environmental Planning)

Associate Adjunct Professor
Adina M. Merenlender, Ph.D. Ecology, conservation biology, landscape ecology using GIS (Environmental Science, Policy, and Management)

Specialist
Richard B. Standiford, Ph.D. Wildland economics and management (Environmental Science, Policy, and Management)

Graduate Adviser: Ms. Allen-Diaz

Program Overview
The graduate program in range management is designed to house a critical group of faculty members from the Department of Environmental Science, Policy, and Management and related departments at Berkeley. The program prepares students who have received a bachelor’s degree in resource management or related disciplines to pursue advanced work. Graduate study leads to a Master of Science degree that serves as the basis for a professional career in rangeland management. Fields of specialization include grassland, savanna, and shrubland ecology, rangeland rehabilitation, wetland ecology, and rangeland policy.

Excellent laboratory and field facilities are available for student research. This includes several experimental range properties and large wildlife ranges easily accessible from Berkeley. The faculty are actively engaged in both theoretical and practical research.

Doctoral work in range management may be pursued as part of the Ph.D. program in Environmental Science, Policy, and Management.

Religious Studies
(College of Letters and Science)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 301 Campbell Hall, (510) 642-2363
 lux.berkeley.edu/ugis/religiousstudies

Student Affairs Office: Marty Geenlijn, Undergraduate and Interdisciplinary Studies, 301 Campbell Hall, (510) 642-2363

Advisory Committee
Daniel Boyarin (Near Eastern Studies)
Vasudha Dhalmi (South and Southeast Asian Studies)
Thomas Dandelet (Near Eastern Studies)
John Efron (History)
Susanna Elm, Director (History)
Miriam Fermi (Anthropology)
Robert Goldman (South and Southeast Asian Studies)
Ronald Hendle (Near Eastern Studies)
Charles Hirschkind (Anthropology)
David Hollinger (History)
Steven Justice (History)
Geoffrey Koziel (Near Eastern Studies)
Niklaus Largier (German)
Margaret Larkin (Near Eastern Studies)
Saba Mahmood (Anthropology)
Carol Redmond (Near Eastern Studies)
Alexander V. Rospatt (Southeast Asian Studies)
Robert Shart (Near Eastern Studies)
David Strohman (Near Eastern Studies)
Natalius (Near Eastern Studies)
Duncan Williams (East Asian Languages and Cultures)

Group Major in Religious Studies

The religious studies major provides opportunities for securing a broad background in the liberal arts while at the same time allowing for a focus on a thematic concern or a particular religious tradition. It views religion from a global perspective, and combines aspects of the humanities and the social sciences.

The major is open to anyone interested in the symbolic and mythic dimensions of world cultures, the ethical aspects of human religious experience, and the existential issues. It is not restricted to those who have a religious background or are pursuing a religious vocation. Members of the major will be challenged to view religion multicursively and from critical as well as appreciative perspectives.

Graduates in the program have gone on to careers in law, journalism, medicine, international business, counseling, and religious vocations. Others have entered graduate schools in history, sociology, anthropology, international policy, and religious studies.

The program requires both a general understanding of the study of religion as well as a particular emphasis on one specific tradition or thematic concern. The general requirement involves courses that present the methodological approaches to the study of religion, such as sociology of religion and psychology of religion and courses that examine thematic issues, and cross-cultural phenomena, such as myth, ritual, transformative experience, and comparative ethics. The religious traditions that may be included as major fields of emphasis or as supplementary courses include the Jewish, Islamic, Christian, Hindu, and Buddhist traditions, as well as the religious cultures of China, Japan, Africa, and Native American communities.

Most of the courses available for the program are religion-related courses taught within such departments as history, sociology, and near eastern studies. As a supplement to these courses, the program offers a small number of courses sponsored by religious studies, including thematic topics of religion and the introductory courses (one of which surveys the world’s religious traditions, and the other of which introduces the study of religious phenomena thematically).

The group major in religious studies is administered through the Division of Undergraduate and Interdisciplinary Studies. Students are referred to that office for all administrative matters.
Lower Division Requirements: Religious Studies 90A-90B, Introductory Topics in Religious Studies (4-4), to be taken before selecting a field of emphasis.

Upper Division Requirements: Two methodological seminars (one each from the following: History of Art, Near Eastern Studies, Anthropology, Religion and Anthropology, Geography, and Literature); Sociology 12, Sociology of Religion; Religious Studies 106, 107; and the second seminar from the following list. Two thematic courses from the following when topic is thematic: Classics 178, Mythology or Comparative Literature 165, Myth and Literature; Religious Studies 115, Mysticism or Comparative Literature 125, The Mystical Tradition in Literature; Religious Studies 190, Topics in the Study of Religion.

Three courses in one of the fields of emphasis (see below).

Additional religion courses to make a total of at least 30 upper division units. The selection of these courses must be approved in writing by a major adviser (see the religious studies student affairs officer at the beginning of each semester for a current list of courses on topics in religion).

Fields of Emphasis: The field may be any cross-cultural theme (such as the study of ritual, myth, or ethics) in Near Eastern Studies (such as the pre-Christian beliefs of the Celtic world), or the study of a single religious tradition (such as Christianity or Buddhism). Courses available in religious traditions include the following:

**Buddhism:** East Asian Languages (Chinese) 120, 122, 130. Additional courses: History 109, a cultural period (such as the religious interaction of medieval Europe or modern Asia), or the study of a single religious tradition (such as Christianity or Buddhism). Courses available in religious traditions include the following:

**Hinduism:** South Asian 121, 127, 140, 141. Additional courses: History of Art 136A-136B, 136C. Recommended: Students intending to do graduate work in Hinduism should study Sanskrit.


**Islam:** Near Eastern Studies 140, 141, 142, 143A-143B, 143C, 144A-144B, History 109, South Asian Studies 121A-121B, (Arabic) 209A-209B. Recommended: Students intending to do graduate work in Islam should study Arabic.

**Christianity:** Religious Studies 120A, or History 185A, Religious Studies 120B or History 156A, History 156B or 156A, Religious Studies 115. Additional courses: Classics (Greek) 105, English 107, English 110A-110B, History 108, Italian 109A-109B, Italian 130, Near Eastern Studies 131, 132, 134, Philosophy 182, 184, Religious Studies 190 (when topic is Christian). Recommended: Students intending to do graduate work in Christianity should study Latin, Greek, or German.

**Minor Program:** Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. Students wishing to receive a minor in religious studies should register in the group major office and work out a plan of study with an adviser. Students must take Religious Studies 90A and 90B and five upper division courses chosen from an approved list on file in the group major office. All courses must be completed on a letter-grade basis. A minimum of three of the five upper division courses must be completed at Berkeley, and a minimum overall GPA of 2.0 is required.

Honors Program: Students may elect to attempt graduation with honors if they have done well in both general university work and the major courses at the beginning of the semester. Required are upper division work in a language relevant to the student’s academic program (with consent of adviser) and the submission of a bachelor’s thesis or a culmination of one or two seminars of the sequence, Religious Studies H195A-H195B. The thesis must be approved by both the adviser and the student’s thesis director, if these are different.

Lower Division Courses
84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week for 15 weeks. Three hours of seminar per week for five weeks. Three hours of seminar per week for unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 are passed not passed basis. Sections 3-4 are graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunities for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

90A-90B. Introductory Topics in Religious Studies. (4-4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Selected introductory topics in the study of religion. (F,SP) Staff

90B. Introductory Topics in Religious Studies. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Selected introductory topics in the study of religion. Also listed as South and Southeast Asian Studies C51. (SP) Damia

Upper Division Courses
C103. Religion of Ancient Egypt. (3) Three hours of lecture per week. Prerequisites: 18 or consent of instructor. A survey of the religious beliefs of the ancient Egyptians, based primarily upon the written sources. Also listed as Near Eastern Studies C103.

C104. Babylonian Religion. (3) Three hours of lecture per week. A survey of Babylonian religious beliefs and practices based on indigenous texts and monuments. Also listed as Near Eastern Studies C104.

C108. Scandinavian Myth and Religion. (4) Three hours of lecture per week. Religious beliefs and practices during the Viking Age in Scandinavia and their manifestations in later recordings. Readings and discussion in English. Also listed as Scandinavian C160. (F,SP) Staff

C109. Celtic Mythology and Oral Tradition. (4) Three hours of lecture per week. The course will introduce students to the pre-Christian beliefs of the Celtic and Indo-European worlds, to the historical narratives in which such beliefs are embedded, and to the methodology of investigating ancient and medieval belief systems. Also listed as Celtic Studies C168. Staff

C111. Rhetoric of Religious Discourse. (3) Three hours of lecture per week. Consideration of the rhetoric of religious argumentation with special emphasis on the mythical, symbolic, and allegorical language as the bearer of persuasive intention. Also listed as Rhetoric C131. (F,SP) Staff

C118. Western Mysticism: Religion, Art, and Literature. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian C128. Staff

C124. The Renaissance and the Reformation. (4) Three hours of lecture and one hour of discussion per week. Formerly 124. European history from the fourteenth to the sixteenth century. Political, social, and economic developments during this transformation are examined, together with the rise of Renaissance culture, and the religious upheavals of the sixteenth century. Also listed as History C157. (F,SP)

C126. Jewish Civilization I: The Biblical Period. (4) Three hours of lecture and one hour of discussion per week. This is the first course in a four-course sequence in the history of Jewish culture and civilization. It covers the biblical period and the period up to the destruction of the second temple. This course will explore the current state of our knowledge, including the history of ancient Near Eastern myth and religion, the history of Israelite religion, the literary features of biblical narrative, and the Dead Sea Scrolls. Also listed as History C155 and Undergraduate Interdisciplinary Studies C152.

C133. Judaism in Late Antiquity. (4) Three hours of lecture and one hour of discussion per week. This class will examine the emergence and development of classical Judaism, its piety, institutions, thought, and literature. Also listed as Near Eastern Studies C133 and Undergraduate Interdisciplinary Studies C153.

C135. Jewish Civilization: Modern Period. (4) Three hours of lecture and one hour of discussion per week. This is the fourth course in a four-course sequence in the history of Jewish culture and civilization. It explores the major themes in Jewish thought from 1300 to the present, with special attention paid to the transformation of Jewish communal and individual identity in the modern world. Topics to be treated include: the rediscovery of the pre-Hellenistic-Jewish heritage, emancipation, assimilation, Hasidism, racial anti-Semitism, colonialism, Zionism, and contemporary Jewish life in Europe, North America, and Israel. The multicultural nature of Jewish history will be highlighted throughout the course through the treatment of non-European Jewish narratives alongside the more familiar Ashkenazi perspective. Also listed as History C156 and Undergraduate Interdisciplinary Studies C155. Staff

C161. Religion in Early India. (4) Three hours of lecture per week. Designed as a two-semester sequence, these courses are an introduction to the religions that have their origin on the Indian subcontinent—Hinduism, Buddhism, Jainism, Sikhism, and tribal religions—as well as those that originated in other regions, such as Islam, Christianity, Judaism, and Zoroastrianism. Organizing this material chronologically rather than teaching it by separate religious traditions facilitates comparisons and promotes an understanding not only of the differences among these religions but also some of their commonalities in philosophy, theology, and practice. Also listed as South Asian C167. (F,SP) Staff

C163. Religious Movements in Modern India. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 127 or 161 or consent of instructor. Formerly 163. Introduces history of religious movements in modern India. Examines the formation and reinterpretation of indigenous religious practices. Includes a reading of spiritual experience and religious authority at mid-century in an influential modern novel. Examines religious conversations, transformations of wisdom traditions, and the concept of a secular state in post-independence India shapes religious policy and practice. Also listed as South Asian C168. Staff

C164. Religion in Medieval India. (4) Three hours of lecture and one hour of discussion per week. This is the fourth course in a four-course sequence in the history of Jewish culture and civilization. It covers the biblical period and the period up to the destruction of the second temple. This course will explore the current state of our knowledge, including the history of ancient Near Eastern myth and religion, the history of Israelite religion, the literary features of biblical narrative, and the Dead Sea Scrolls. Also listed as History C155 and Undergraduate Interdisciplinary Studies C152.
course is designed to provide a chronological and thematic approach to the study of religion in medieval India. It will cover the period from 600 to 1600 A.D.—a time of remarkable developments in both Hinduism and Islam on the subcontinent. Besides witnessing tremendous religious ferment in the South and the emergence of popular devotional movements within Hinduism, the period also witnessed the development of new mystical and regional articulations of Islam. Also listed as South Asian C123. (F,SP) Goldman

C156. Hindu Mythology. (4) Three hours of lecture per week. Formerly 140. Literary and religious aspects of Hindu myths. Reading of selected mythological texts is also listed as South Asian C140. (F,SP) Goldman

C166. India’s Great Epics: The Mahabharata and the Ramayana. (4) Three hours of lecture per week. Prerequisites: South Asian 5A, 127, 124, or consent of instructor. The course entails substantial selected readings from the great Sanskrit epic poems—the Mahabharata and the Ramayana in translation, selected readings from the corpus of secondary literature on Indian epic studies, as well as lectures on salient issues in both. Discussion will focus on a variety of historical and theoretical approaches to the study of the poems and their extraordinary influence on Indian culture. Readings will be supplemented with selected showings of popular cinematic and television versions of the epics. Also listed as South Asian C142. Goldman

171AC. Religious Pluralism in America. (4) Three hours of lecture and one hour of discussion per week. This course will focus on the diversity of religious traditions as seen through the experience of some of its major racial, ethnic, and immigrant communities. Since ethnicity and issues of race play a defining role in the development of these religious communities and in the theoretical focus of this course, we will center on the tensions racial and cultural differences created, the ways these communities addressed their cultural alienation, and the means they used to ease such tensions. Special attention will be given to the ways these communities resisted assimilation and transformed cultural accommodation, as well as to the ways these communities resisted assimilation and transformed their communities and their circumstances. Theoretically, then, this four-part social-cultural Resistance/ Adaptation model—segregation/accommodation, conflict/ transformation—will frame the course lecture and discussion materials. This course satisfies the American Cultures requirement. Staff

C182. Sociology of Religion. (4) Three hours of lecture and two hours of discussion per week. This course will explore the sociology of religious consciousness in human action and thus survey comparatively and historically the role that religion has played in human society. Will include a general theory of the nature of religious experience, religious symbolism, and the origins of its community. Also listed as Sociol. C112. (F,SP)

190. Topics in the Study of Religion. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Selected topics or problems in the study of religion. (F,SP) Staff

H195A-H195B. Honors Course. (3-3) Independent Study. Course may take one or two semesters at the option of the instructor and student with credit to be earned upon completion of a successful thesis. Successful completion of the course will normally, but not necessarily, provide a basis for honors. Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Independent study. Must be taken on a passed/not passed basis. Tutorial instruction in areas not covered by regularly scheduled courses. Staff

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Independent study. Must be taken on a passed/not passed basis. (F,SP) Staff

Rhetoric

(College of Letters and Science)

Department Office: 7408 Dwinelle Hall, (510) 642-1415 rhetoric@berkeley.edu

Chair: Michael Maccub, Ph.D.

Professors

Daniel Boyarin, Ph.D. Jewish Theological Seminary of America. Talmud,敦煌学 in Late Antiquity, religion and systems of sex and gender, rhetoric of interpretation.

Judith Butler, Ph.D. Yale University. Feminist theory, sexuality and culture, biopolitics, ethics, the philosophy of language and social and political thought.

Anthony J. Cascardi, Ph.D. Harvard University. Philosophy and literature, aesthetics, the novel, critical theory, Renaissance/Early Modern

Pheng Cheah, Ph.D. Cornell University. 20th century continental philosophy, critical theory, postcolonial theory and anglophone postcolonial literatures theory of globalization philosophy and literature, legal philosophy, social and political thought.

David Cohen, Ph.D. Cambridge University. J.D. University of California. Social theory, legal and social history, legal philosophy, classical rhetoric, international law, human rights

Marianne Constable, J.D., Ph.D. University of California. Legal rhetoric and philosophy, sociology of law, social theory, Anglo-American legal traditions, philosophy of social science.

Shannon Jackson, Ph.D. Northwestern University. Performance of local culture, social reform, the study and practice of legal performance, adaptation, and oral narrative.

Kaja Silverman, Ph.D. Brown University. Feminist theory, psychoanalysis and cultural studies.

Min-ha T. T. Thinh, Ph.D. University of Illinois. Postcolonial theory, film theory and aesthetics, Avant-Garde cinema, documentary, feminist theory.

Kimberly Ann Shiflett, Ph.D. University of Colorado. Film history and genre, melodrama and pornography, feminist theory, women and culture.

Seymour B. Chatman (Emeritus), Ph.D.

Carol J. Clover (Emerita), Ph.D.

Barbara Shapira (Emerita), Ph.D.

Thomas O. Sloan (Emeritus), Ph.D.

Todd G. Willy (Emeritus), Ph.D.

Associate Professors

David Bates, Ph.D. University of Chicago. European intellectual history, 18th-19th century Enlightenment thought culture and political and revolutionary discourse, philosophy of history.

Michael Maccub, Ph.D. Cambridge University. Narrative and culture; media and society, Early Modern and Modern culture, especially British; British social and cultural history, 1500-1900.

Daniel F. Melia, Ph.D. Harvard University. Oral literature, Celtic language literary theory and medieval literature.


Michael Westernbogle, Ph.D. University of California, Los Angeles. History of science, early modern historical culture, popular and cultural interest in science, history of anthropology and intellectual history.

Assistant Professor

Samantha Zemer, LL.M., Ph.D. New York University. Colonialism and modernity, war, violence, memory, sociological studies, social and political thought, Middle Eastern studies.

Affiliated Faculty

Hubert Dreyfus, Ph.D. Harvard University. Continental philosophy, cognitive science, artificial intelligence, philosophy of technology.

Martin Jay, Ph.D. Harvard University. European intellectual history, Marxist theory, visual discourse and culture.

Anton Kaes, Ph.D. Stanford University. Film theory, German cinema.

Anthony Long (The Irving Stone Professor of Literature), Ph.D. University of London. Ancient philosophy and Greek literature.


Wittgenstein, Foucault political philosophy.

Lecturers

Felipe Gutierrez, J.D., Ph.D. University of California, Berkeley. Contemporary rhetorical theory, social theory, legal rhetoric.

Nancy Weston, Ph.D. University of California, Berkeley. J.D. Harvard University. Philosophy of law, continental philosophy of law, philosophy of law, the philosophy of social and contemporary social, moral, legal, and political thought.

Department Overview

Rhetoric Majors are trained in the history of rhetorical theory and practice, grounded in argumentation and in literary analysis of the rhetorical dimensions of discourse. The department offers both a pragmatic understanding of the elements of rhetorical analysis—with special attention to the structure, style, tone, as well as form, as well as a thorough grounding in the historical development of these elements in rhetorical theory. The combination allows students to make a disciplined grasp of the contemporary scholarly and theoretical currents in the history and theory of rhetoric, the department provides an understanding of the format of contemporary thought and interpretation, as well as an opportunity, within this framework, to explore the role of persuasion in pragmatic and aesthetic contexts.

Note: The major is not intended to provide skills-based training in oral argument or communication.

Major Program

Undergraduates may concentrate in one of the following areas: (a) history and theory of rhetoric, (b) public discourse, and (c) narrative and image.

Majors must complete the following course requirements: rhetoric 10 and 20 in the upper division, rhetoric 103A and 103B in the upper division, plus five additional upper division courses in Rhetoric—three in the specified area of concentration and two outside the specified area. Majors are required to take one course outside the department related to the specified area of concentration in the major.

Students must complete rhetoric 10 or 20 with letter grades of C or better during the junior year. Rhetoric 103A and 103B should be completed in sequence during the junior year; senior year is recommended for coursework in the specified area of concentration. However, concurrent enrollment in 103A and 103B and other upper division courses in rhetoric is permitted.

A C average in all upper division rhetoric courses and the designated course outside the major is required to finish the major program successfully. No course taken for a passed/not passed grade will be allowed toward credit for the major.

A. History and Theory of Rhetoric. This area focuses on understanding the development of rhetorical theory and practice from its genesis in the classical period to its situation in the present. Students will consider how the discipline of rhetoric has both shaped and itself been shaped by social, political, technological, and institutional developments over the course of two millennia. Individual courses will enable close study of the process of rhetoric’s influence and adaptation, both in theory and in practice, in specific contexts throughout its history.

Courses in this area include: 105, 110, 110M, 132, 137, 138, 140, 173, 174, 175, 177, 181, 196. *

B. Public Discourse. This area focuses upon understanding rhetoric in its symbolic and institutional dimensions, with special emphasis on legal and political forums. Students consider the discourse of law, politics, and society both in theory and in practice, in an attempt to understand the rhetorical nature of political judgment, action, justice, and legitimacy. Individual courses will enable close study of specific problems, concerns, vocabularies, modes of interpretation, and strategies of argumentation arising in a variety of historical, cultural, and social contexts from the past and present. Courses in this area include: 131, 141AC, 150, 152, 152AC, 153, 155, 157A-157B, 158, 159A-159B, 160, 162AC, 163AC, 164, 165, 166, 167, 168, 170, 171, 172, 179, 182, 186.
Rhetoric also offers a special track for graduate students interested in pursuing a Ph.D. in the area of film studies. Crucial to the department’s approach is the notion of rhetoric as a metadisciplinary concept, which at least five different topics in rhetoric. They must include Rhetoric 200, The Origins of the Rhetorical Tradition; 205, Modern Rhetorical Theory; and a seminar offered in the department whose focus is on rhetorical matters before 1800. Because of the department’s commitment to interdisciplinary research, graduate students are encouraged at every stage of their careers to work with faculty in other departments. Please check with the department for a more detailed description.

Lower Division Courses

Check with department for exact course offerings during the year.

R1A. The Craft of Writing. (4) Three hours of lecture per week. Prerequisites: UC Entry-Level Writing Requirement or UC Analytical Writing Placement Exam. Formerly 1A Rhetorical approach to re: Fog and writing argumentative discourse. Close reading of selected texts; written thesis developed from class discussion and analysis of rhetorical strategies. Satisfies the first half of the Reading and Composition requirement. (F,SP) Staff

R1B. The Craft of Writing. (4) Three hours of lecture per week. Prerequisites: 1A or equivalent. Formerly 1B. Intensive argumentative writing drawn from controversy stimulated through selected readings and class discussion. Satisfies the second half of the Reading and Composition requirement. (F,SP) Staff

10. Introduction to Practical Reasoning and Critical Analysis of Argument. (4) Three hours of lecture per week. An introduction to practical reasoning and the critical analysis of argument. Topics treated will include: definition, the syllogism, the enthymeme, fallacy, and the critical analysis of argument. Topics treated will be graded on a letter-grade basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. Supervised Group Study. (1-3) Course may be repeated for credit. One to three hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of adviser. Instructed for a small group of students on a topic initiated by those students. (F,SP) Staff

Upper Division Courses

Because there have been changes to major and minor requirements, please check with the department for any changes in prerequisites of rhetoric courses or curriculum.

103A. Approaches and Paradigms in the History of Rhetorical Theory. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 10 or consent of instructor. Formerly 100. A broad consideration of the historical relationships between philosophy, literature, and rhetoric, with special emphasis on selected themes of the classical and medieval periods. (F,SP) Staff

103B. Approaches and Paradigms in the History of Rhetorical Theory II. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 10 or consent of instructor. Formerly 100. A broad consideration of the historical relationships between philosophy, literature, and rhetoric, with special emphasis on selected themes of the early modern and modern periods. (F,SP) Staff

105. Rhetorical Theory and Practice in Historical Eras. (4) Course may be repeated for credit with different instructor. Three hours of lecture per week. An
examination of the relations between rhetoric, discourse, and knowledge in selected historical eras—for example, the European Renaissance, the Atlantic Enlightenment, or Victorian Britain. (F,SP) Staff

110. Advanced Argumentative Writing. (4) This course is equivalent to 110M. Three hours of lecture per week plus individual conferences. Prerequisites: Any 1A-1B sequence or upper division standing. Study and practice of advanced techniques of argumentation for students with well-developed writing skills. Ethical, logical and pathetical appeals; control of register and tone; assessment of a wide variety of real audiences; genre studies. (F,SP) Staff

119. Genre in Film and Literature. (4) Course may be repeated for credit. Three hours of lecture per week. Consideration of the problems arising from the transformation of five novels, which will be adapted into their filmed versions. Prerequisites: Upper division standing in any film, drama, or English literature course. Staff

121A-121B. Rhetoric of Fiction. (4) Three hours of lecture per week. Prerequisites: A is prerequisite to B.

122. Rhetoric of Drama. (4) Three hours of lecture per week. Examination of the way character is created in drama by repetitive rhetorical patterns and the ways themes are defined by manipulation of such patterns. Staff

124. Rhetoric of Poetry. (4) Three hours of lecture per week. Prerequisites: 30. Consideration of the relationship between the texture of poetic discourse largely defined by figures of speech and overall poetic structures. (SP) Staff

127. Novel, Society, and Politics. (8) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. This course examines the complex links between novelistic discourse, society, and politics. Topics to be studied may include: the social and political valuation of the Bildungsroman and the realist novel; autobiography and the rise of liberal individualism; political censorship; and the role of the novel in imagining the nation. (F,SP) Staff

128. Novel into Film. (4) Three hours of lecture per week. Close examination of the adaptation of written fiction to the cinema. Focus on the problems arising from the transformation of five novels, which will be read, into their filmed versions. (F,SP) Staff

131. Rhetoric of Religious Discourse. (4) Three hours of lecture per week. Consideration of the rhetoric of hermeneutics or biblical interpretation with special emphasis on the mythical, symbolic, and allegorical language as the bearer of persuasive intention. (F,SP) Staff

132. Rhetoric of Religious Discourse. (4) Three hours of lecture per week. Consideration of the rhetoric of hermeneutics or biblical interpretation with special emphasis on the mythical, symbolic, and allegorical language as the bearer of persuasive intention. Also listed as Religious Studies C111. (F,SP) Staff

132R. Rhetoric, Culture, and Society. (4) Three hours of lecture per week. Prerequisites: 160A or consent of the instructor. Analysis of rhetorical practice in the context of social and cultural change with particular reference to the historical transition from pre-industrial to industrial society in the west. (F,SP) Staff

132M. Rhetoric, Culture, and Society. (4) Three hours of lecture per week. Prerequisites: 10 or consent of the instructor. Analysis of rhetorical practice in the context of social and cultural change with particular reference to the historical transition from pre-industrial to industrial society in the west. Also listed as History C193. (F,SP) Staff

133. Selected Topics in Film. (4) Course may be repeated for credit as topic varies. Three hours per week plus viewing sessions. Prerequisites: Upper division standing in any film, drama, or English literature course. This course might focus on the work of a single filmmaker, a particular cinematic “genre,” or a nonhistoric and nongeneric category. Examples: Film Practice, Gay and Lesbian Cinema, Race and Cinematic Representation, Alfred Hitchcock. Staff

135. Rhetoric of Narrative Genres in Nonliterate Societies. (4) Course may be repeated for credit with different instructor. Three hours of lecture per week. Investigation of the cultural prin- cipalities and textual strategies common to various genres of narrative, both prose and poetic, in nonliteratesocieties. Mythic, epic and folk narratives considered, as well as written works from cultures in transition. Staff

136. Rhetorical Approaches of Folklore. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Performance, persuasion and play in metorical perspective. The course will explore performance genres on the margins of orality-literacy in diverse cultures, including particularly contemporary Arabic folk cultures, medieval European vernacular traditions, and contemporary American popular cultures. Staff

139. Rhetoric of Autobiography. (4) Three hours of lecture/discussion per week. Rhetorical analysis of autobiographical discourse, with special attention to the evolution of the genre in relation to changing modes of human subjectivity. Staff

140. The Discourse of Qualities. (4) Three hours of lecture/discussion per week. Prerequisites: Any 1A-1B sequence or upper division standing. Study of the discourse of qualities, with focus on how we speak about the “howness” of things as opposed to the “whatness” of things. The approach questions of taste, aesthetic judgment, expression, and representation. Staff

150. Rhetoric of Contemporary Politics. (4) Three hours of lecture per week. Examination of the characteristics of rhetoric of a variety of manifestations of modern politics. Emphasis on building a theoretical foundation for critically observing and participating in the current political process. (F,SP) Staff

152AC. Race and Order in the New Republic. (4) Three hours of lecture and one to two hours of discussion per week. Prerequisites: 160A or consent of the instructor. This course concentrates on aspects of the development of the United States from 1787 to the present. We will examine the discursive construction of race in the United States through the 19th centuries. This course will explore the ways in which racism and race-based thinking have shaped American political, social, and legal theory. We will study how the law has both posed questions of what it means to be a member of a racial group and how it has attempted to answer those questions. Staff

153. American Political Rhetoric. (4) Three hours of lecture per week. Survey of the ways in which Americans have discussed their existence as a distinct nation during the first two centuries of American history. Readings to cover the 17th through the 20th centuries and may include discussion of important legal, political, and theoretical works. Staff

155. Advanced Problems in the Rhetoric of Political Theory. (4) Three hours of lecture per week. Close study of selected works of modern political theory, including debates over the nature and interpretation of political theory and the role of the political theorist. Staff

157A. Rhetoric of Modern Political Theory. (4) Three hours of lecture per week. Formerly 157. Study of the textual strategies of important works of modern European and American political theory from the 17th through 20th centuries. (F,SP) Staff

157B. Rhetoric of Contemporary Political Theory. (4) Three hours of lecture per week. Study of the textual strategies of important works of 20th century Euro- pean and American political theory. (F,SP) Staff

158. Advanced Problems in the Rhetoric of Political Theory. (4) Three hours of lecture per week. Close study of selected works of modern political theory, including debates over the nature and interpretation of political theory and the role of the political theorist. Staff

159A. Great Theorists in the Rhetoric of Political and Legal Theory. (4) Three hours of lecture per week. Prerequisites: Permission of instructor. Staff

159B. Great Themes in the Rhetoric of Contemporary Political and Legal Theory. (4) Three hours of lecture per week. Prerequisites: Permission of instructor. Staff

160. Introduction to the Rhetoric of Legal Discourse. (4) Three hours of lecture per week. Prerequisites: Three hours of legal methodology to all categories of legal texts. Staff

162A. Rhetoric of American Culture. (4) Three hours of lecture/discussion per week. Prerequisites: Upper division standing. This course explores the ways laws and regulations in the United States identify and classify—or fail to identify and classify—groups in American society. Readings include a wide array of theoretical and historical materials, as well as legal and governmental documents. This course satisfies the American Cultures requirement. Staff

164. Rhetoric of Legal Theory. (4) Three hours of lecture per week. Rhetorical methodology applied to close analysis of the argumentative framework of important works in modern legal theory. (F,SP) Staff

165. Rhetoric of Legal Philosophy. (4) Three hours of lecture per week. Consideration of basic philosophical issues related to legal and moral foundations of the law. (F,SP) Staff

167. Advanced Topics in Law and Rhetoric. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: At least one course from 160, 164 or 165. Thorough consideration of particular rhetorical themes in the field of legal theory, legal philosophy, and legal argumentation. (F,SP) Staff

170. Rhetoric of Social Science. (4) Three hours of lecture per week. Analysis of the ways in which political scientists, sociologists, anthropologists, economists and psychologists establish the authoritativeness of their claims. Focus is on the presentation of data as fact, the use of quantitative methods, and “other strategies” through which social knowledge is transformed into objective information. Staff

171. The Problem of Mass Culture and the Rhetoric of Social Theory. (4) Three hours of lecture per week. Study of the textual strategies whereby the masses and mass culture emerge as objects of anxiety, hope, and policy for social theorists of the 19th and 20th centuries. Staff

172. Rhetoric of Social Theory. (4) Three hours of lecture per week. Rhetorical analysis of theorists from
Durkheim and Weber, as well as Marx, Ricardo and Bentham, to contemporary representatives of social and economic thought. Staff

173. Rhetoric of Historical Discourse. (4) Three hours of lecture per week. A study of how historical knowledge is interpreted. Topics include narrative and representation, the uses of evidence, forms of historical argumentation, and historical controversies in the public realm. (F,SP) Staff

174. Rhetoric of Scientific Discourse. (4) Three hours of lecture per week. Examination of the characteristic functions of discourse in and about the natural sciences; with particular examination of the ways in which scientific language both guarantees, and at the same time, obscures the expression of social norms in science. (F,SP) Staff

175. Rhetoric of Philosophical Discourse. (4) Three hours of lecture per week. Introduction to theoretical issues involved in applying rhetorical analysis to philosophical discourse; intensive analysis of selected philosophical works. (F,SP) Staff

176. Language, Truth and Dialogue. (4) Three hours of lecture/discussion per week. Prerequisites: Any 1A-1B sequence or upper division standing. A study of the origins and transformations of language as a genre, with special reference to the relationship between the rhetoric of novelistic discourse and the social history of the modern individual. Readings will be drawn from primary and secondary sources in the Western tradition, in translation where appropriate. Staff

177. Rhetorics of Sexual Exchange and Sexual Difference. (4) Course may be repeated for credit. Three hours of seminar per week. This course examines the centrality of sexual difference and sexual exchange to the structuring of societies, cultures, and political life. Possible topics include: theories of desire and corporeality; the figure of woman as object of exchange in historical and contemporary contexts such as Satí, prostitution, surrogacy and IVF, and the global traffic in female labor; and an examination of how sexual difference functions as a blind-spot in the theories of culture, society, and economy. (F,SP) Staff

181. Undergraduate Seminar on the Theory and Practice of Interpretation. (4) Three hours of lecture per week. Prerequisites: Any 1A-1B sequence and consent of instructor. An introduction to contemporary modes of reading and interpretation in the humanities through psychoanalysis, with an emphasis on theories of the sign (semiotics). Examples drawn from such fields as contemporary literature, architecture, history, painting, film, and popular culture. Staff

189. Special Topics. (4) Course may be repeated for credit. Three hours of lecture per week. Group instruction and investigation of topics not accommodated in regular course offerings. (F,SP)

H190A-H190B. Honors Thesis. (2,2) Tutorial. Students must take 2 units of H190A and 2 units of H190B. Credit and grade to be awarded on completion of sequence. Prerequisites: Senior standing with a 3.7 GPA in rhetoric and 3.5 GPA overall. Formerly H190A. Independent study under guidance of a faculty director culminating in a written thesis. Required of all rhetoric majors desiring to earn the A.B. degree with honors. (F,SP) Staff

196. Special Topics. (4) Course may be repeated for credit with different topic. Three hours of lecture/ seminar per week. Prerequisites: Consent of instructor. Group instruction and investigation of topics not accommodated in regular course offerings. Staff

198. Supervised Group Study. (1-3) Course may be repeated for credit. Tutorial. Must be taken on a passed/not passed basis. Prerequisites: Junior standing and approval of advisor. Instruction for a small group of students on a topic initiated by those students. (F,SP) Staff

199. Supervised Independent Study. (1-3) Course may be repeated for credit. Tutorial. Must be taken on a passed/not passed basis. Prerequisites: 3.0 GPA. For special projects that cannot be otherwise accommodated. (F,SP) Staff

Graduate Courses

200. Classical Rhetorical Theory and Practice. (4) Three hours of seminar per week. Prerequisites: Graduate standing and consent of instructor. An introduction to the questions around which classical rhetorical theory and practice are organized. Through an analysis of materials drawn principally from the Ancient Greek and Roman periods, possibly including later revivals of classical rhetoric, the course will examine the formation of rhetoric in the West as an intellectual stance from which to practice a range of related fields—including but not limited to—philosophy, history, literature, politics, religion, law, science, and the arts. (F,SP) Staff

219. Aesthetics as Critique. (4) Three hours of lecture per week. Formerly 221. A close reading and discussion of the major texts of modern aesthetics, from the 18th century to the present, with emphasis on the Continental tradition of Kant, Adorno, and Derrida. Also listed as Comparative Literature C221.

230. Rhetoric and History. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Graduate status. This course investigates both the concept of history and the practice of historiography, using an engagement with the literal and metaphorical archives of the past to consider their empirical and philosophical claims on the present. While the methods, themes, and historical reach may vary, the course requires Rhetoric graduate students to investigate pre-1900 material in some form and to consider both the pragmatics of conducting historical inquiry and the interpretive frameworks that structure them. (F) Staff

240. Rhetorical Theory and Criticism. Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Graduate status. Advanced investigation of the rhetorical dimensions of various modes of discourse. Specific topics to be announced. Staff

240E. Political Discourse. (4) Staff

240F. Legal Rhetoric and Philosophy. (4) Staff

240G. Rhetorical Theory. (4) Staff

240H. Rhetorical Theory and Criticism: Gender and Science. (4) Three hours of lecture per week. A considerable literature has emerged over the last decade arguing for the importance of gender as an analytic category in the history of science. Devoted to an examination of the import of such analyses for our reading of more traditional accounts of specific periods in modern scientific history. Will aim at refining the questions that have been posed by feminists, and developing techniques for further analysis of the role that cultural norms of gender have played in the history of science. Staff

243. Special Topics in Film. (4) Course may be repeated for credit. Three hours of seminar per week plus two film viewings. Prerequisites: Graduate standing. A theoretical examination of a film topic which falls outside the purview of traditional categories of film analysis, such as “genre,” “history,” or “theory.” Examples: Rainer Werner Fassbinder, The Essay Film, Feminist Film Practice, Cinema and the Phantom Magna Historia. Staff

244. Special Topics in Rhetoric: Limited study. (2) Course may be repeated for credit. Four hours of seminar for six weeks. This course studies various models of rhetorical discourse. Specific topics to be announced. (F,SP)

250. Rhetoric of the Image. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Graduate standing and consent of instructor. A study of the visual image as a mode of discourse, together with an analysis of the terms in which images have been interpreted and criticized. Focus may be on the rhetoric of a particular image or set of images, or on more broadly theoretical writings about image. (F,SP) Staff

280. Research Methods for Dissertation Writing. (4) Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. This seminar is designed to help ABD students at the initial stage of dissertation writing to construct a detailed plan for dissertation research and to complete a dissertation prospectus. Earlier meetings will be devoted to library research methods, working with electronic databases, the collection and analysis of data, and the compilation of a bibliography. A session will also be devoted to the appropriate format, style, and structure of a dissertation-length scholarly work as well as systems of citation and reference in both the social sciences and the humanities. The final part of the course will be devoted to the discussion of drafts of dissertation prospectuses. (F,SP)

295. Directed Research. (1-12) Course may be repeated for credit. Individual tutorial. Prerequisites: Graduate adviser approval. Open to qualified graduate students wishing to pursue special topics under the direction of a member of the staff. (F,SP) Staff

601. Individual Study for Master’s Students. (1-6) Course may be repeated for credit. Individual arrangement. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate status. Individual study for degree or language examinations in consultation with staff member. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for credit. Individual arrangement. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate status. Individual study in consultation with faculty director as preparation for degree examinations. (F,SP) Staff

Professional Courses

300. Problems in Teaching Rhetoric. (2) Two hours of lecture per week. Must be taken on a satisfactory/ unsatisfactory basis. Prerequisites: Appointment as teaching assistant. Instruction in teaching argumentative writing and rhetorical analysis. (F,SP) Staff
Ph.D. Program

The Ph.D. in Romance Languages and Literatures is a doctorate in three Romance languages and literatures (French, Italian, and Spanish, including Spanish-American), prepared with emphasis in the literature or in the linguistics or philological history of one of the three. The program is intended to afford students the opportunity to undertake more detailed comparative studies among the Romance languages and their literary cultures than is normally the case in any single department's program. It is founded upon the belief that a truly comprehensive understanding of any of the major Romance languages and their literature must be nourished by a substantial degree of familiarity with all of them.

Students choose from among three plans whose prerequisites vary slightly. Plans I and II require a B.A. degree with studies in Spanish, Italian, or French, and an introductory equivalent to the undergraduate major at Berkeley (30 upper division semester units). Plan III requires either a B.A. degree with studies in Spanish, Italian, or French, as for Plans I and II, or a B.A. in a combination of Romance languages, or Hispanic, with expertise in at least two major Romance languages.

Students are admitted for one of the three plans and present a combination of courses and personal study to satisfy the requirements of the particular plan as developed in consultation with a graduate adviser and designed to prepare the students for the qualifying examination. Students designate one Romance field (choosing from among French, Italian, or Spanish and Spanish-American) as their emphasis; the remaining two languages and literatures are designated "collaterals." Applications for admission should be submitted to the department of the language and literature of major emphasis.

Plan I requires a detailed knowledge of the major language, knowledge of the first collateral literature as prescribed in a supplied reading list of 15 items, and knowledge of the master works of the second collateral as prescribed in a reading list of 10 items. In addition, familiarity with the linguistic history of the Romance languages, with emphasis on the major language, is required.

Plan II requires a detailed knowledge of the major language and a detailed command of one broad, integrated field (political, economic, or general) in both of the collateral literatures, to be chosen by the student in consultation with a graduate adviser and in accordance with the student's special area of interest in the major literature. Individual tailored reading lists for both the collateral literatures (15 and 10 items, respectively) are to be developed by the student, as advised and approved by the faculty member of the department concerned. Familiarity with the linguistic history of the Romance languages, with emphasis on the major language, is also required.

Plan III requires an in-depth knowledge of the structure and history (internal and external) of the major language, and an in-depth knowledge of either the history or the structure, depending on whether the student's preferred orientation is diachronic or synchronic, of the Romance language designated as first collateral.

Students are given three options with respect to the second collateral: (a) familiarity with the history and structure of the third language; (b) familiarity with the history and structure of a related Romance language (Catalan, Gallician, Occitan, Portuguese, Romanian, or Romance-based creoles); (c) a broad defied field of linguistics (phonology, morphology, syntax, semantics, pragmatics, sociolinguistics), philology (textual criticism, medieval literature), or the application of linguistics to literature, the latter field to be chosen by the student in consultation with a graduate adviser. Students will develop an individually tailored reading list for the option they choose, in consultation with and approved by an appropriate faculty member. The course entitled Linguistic History of Romance Languages, taken as either French C202, Italian C201, or Spanish C202, is also required.

In all plans, work beyond the requirements may be added in other Romance fields (such as Catalan, Portuguese, Occitan, or Romanian).

General Requirements for all plans include fluency in the major language and reading knowledge of the collateral languages as well as Latin. Students must show a reading knowledge of any one of the languages by passing a written examination in the literature of the languages in question. The course entitled Linguistic History of Romance Languages, taken as either French C202, Italian C201, or Spanish C202, is also required. Study is guided, in the second semester of residence, by an individual member representing the second collateral. This examination is oral and normally three hours long.
Swedish, 4 units each), or Scandinavian 102A-102B (equivalent of intermediate/advanced Finnish, 4 units each).

(2) Two history courses from the following (8 units): Scandinavian 123 (4), 127 (4), or 128 (4).

(3) Five courses in literature, culture, or folklore chosen from the following (20 units): Scandinavian 106, C107, C108, C114, 115, 116, 117, 123, 125, 127, 128, 132, 140A, 140B, 150, C160, 165, 170, or 180 (4 units each).

Note: The undergraduate faculty adviser may approve substitutions for relevant courses taken in other departments or colleges or from the Education Abroad Program. Since Scandinavian 140A-140B is not offered consistently, the upper division courses listed under history, literature, culture, or folklore may be used as substitutes by permission of the undergraduate faculty adviser.

(4) Two courses of Scandinavian 149, Major Research (1 unit each); In addition to the nine upper division courses above, students must also take two 1-unit courses of Scandinavian 149, Major Research, in conjunction with any of the upper division courses listed under literature, history, culture, or folklore. These 149 research courses must be taken by permission of the relevant instructor and the undergraduate faculty adviser. Current majors will also want to consider the link on our web site detailing upcoming courses.

Honors Program. Students must complete with distinction the courses required for the major as well as two semesters of Scandinavian 145, the Senior Seminar. A thesis is also required.

The Minor
Total units for the minor: 20.
Required courses: Five upper division courses chosen in consultation with the undergraduate faculty adviser.
(1) Minimum of one course in Scandinavian history: Scandinavian 123, 127, or 128.
(2) Four electives.

Competency in a Scandinavian language is not required to take our upper division courses, which are usually taught in translation. Students interested in learning a Scandinavian language, however, may count both 100A and 100B (the second year courses in Danish, Norwegian, or Swedish) or 102A and 102B (the equivalent courses in Finnish) toward the five course requirement.

Note: Students with credit from Education Abroad courses should consult with the undergraduate faculty adviser for help in determining requirement equivalencies.

Education Abroad Program
The University of California offers students the opportunity of studying abroad in Sweden (Lund University) and Denmark (University of Copenhagen). These programs feature language study with courses in culture, history, literature, architecture, and other areas within the humanities and social sciences. Many of the courses may be applied toward language courses and upper division credit in the major or minor. Students must consult with the undergraduate faculty adviser for approval before they leave. Details for programs are available from the Education Abroad Programs for Study Abroad, 160 Stephens Hall, (510) 642-1356; studyabroad.berkeley.edu.

Graduate Program
Aims of the Program. The graduate program in Scandinavian is designed for future scholars and teachers in the field of Scandinavian languages and literatures. The program leads to the Master of Arts and Doctor of Philosophy in Scandinavian. The department welcomes proposals for alternative or interdisciplinary programs for students with special interests in areas such as art, film, folklore, history, and linguistics. Interested students should submit detailed written proposals for such programs with their application for admission.

Preparation. The A.B. in Scandinavian, or its equivalent, is ordinarily prerequisite to admission. Preparation should include comprehensive knowledge of one Scandinavian language and good reading ability in at least one other, as well as knowledge of the broad outlines of Scandinavian culture and history. Students with less preparation may be admitted under the stipulation that deficiencies be corrected.

Master of Arts. Please note that the department does not accept applications for the M.A. as a terminal degree; it is anticipated that all admitted students, subject to satisfactory performance in the M.A. program, will proceed to the Ph.D. program. The General Education requirement is 4 units, including at least 12 graduate units. Courses from other departments may be accepted with the consent of the graduate adviser. Students will prepare a major and a minor, the major field to be studied comprehensively. Students presenting a Scandinavian literature as a major field, for example, must work in three periods: Middle Ages, Reformation to Romanticism, and Realism to the present. An examination will test the student's knowledge of both the major and the minor fields with emphasis upon the literature in the major language.

The Ph.D. in Scandinavian. General requirements: A minimum of 90 graduate units is required, including at least 60 units of graduate coursework. Students must complete two semesters of work in Old Norse, pass the departmental requirements in two foreign languages, and submit three field papers as examples of their scholarly ability. There are no other specific requirements as to graduate coursework at this level, but students should enroll in units according to Graduate Division guidelines, keeping in mind that continued seminar work will benefit them in taking their Ph.D. qualifying examinations. Seminar courses will also help students establish the skills necessary to write a dissertation, and work with the professor and the Ph.D. student's committee and seminars offer lower division students the opportunity to experience intellectual topics, faculty members in departments all across the campus. Sophomore seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP)

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of lecture per week. Berkeley Seminars are designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP) Staff

Lower Division Courses
1A. Beginning Swedish. (4) Three hours of language instruction and one hour of computer laboratory per week. Students will continue to develop the basic elements of communicative competence in both the spoken and written language within a cultural context. (F,SP) Staff

1B. Intermediate Swedish. (4) Three hours of language instruction and one hour of computer laboratory per week. Prerequisites: 1A or consent of instructor. Students will continue to develop the basic elements of communicative competence in both the spoken and written language within a cultural context. (F) Staff

2A. Beginning Finnish. (4) Three hours of language instruction and one hour of laboratory per week. Students will develop the basic elements of communicative competence in both the spoken and written language within a cultural context. (F) Staff

2B. Beginning Finnish. (4) Three hours of language instruction and one hour of laboratory per week. Prerequisites: 2A or consent of instructor. Students will develop the basic elements of communicative com-
100. Scandinavian Languages and Linguistics. (4) Two hours of language instruction and one hour of lecture in the cultural component per week. Prerequisites: 100A or consent of instructor. Formerly 101, 103, 104. In the context of inter-Scandinavian communication, students will acquire the oral competence necessary to function in authentic situations of language use with respect to grammatical, functional, and sociolinguistic skills in their own target language (Danish, Norwegian, or Swedish). Workload: Three to two hours outside class per week with one hour of individual work in the Berkeley Language Media Center. Oral and written midterm and final. (F) Moller

100B. Scandinavian Languages and Linguistics. (4) Two hours of language instruction and one hour of lecture in the cultural component per week. Prerequisites: 100A or consent of instructor. Formerly 101, 103, 104. In the context of inter-Scandinavian communication, students will acquire the oral competence necessary to function in authentic situations of language use with respect to grammatical, functional, and sociolinguistic skills in their own target language (Danish, Norwegian, or Swedish). Students will read and interpret literary and nonliterary texts from a cultural perspective. Workload: Two to three hours of work outside class per week with one hour of individual work in the Berkeley Language Media Center. Final (Group) project producing a video interview with local Scandinavian immigrants. Oral and written midterm and final. (SP) Moller

102A-102B. Advanced Finnish. (4;4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 102A: 2B or consent of instructor; 102B: 102A or consent of instructor. Formerly 10 and 102. Students will focus on acquiring communicative competence necessary to function in authentic situations of language use in terms of grammatical, functional, and sociolinguistic skills. Students will read and interpret literary and nonliterary texts from a cultural perspective. The course uses a flexible group-work and independent project approach to advanced language study. (F,SP) Tuomainen

106. The Works of Hans Christian Andersen. (4) Three hours of lecture per week. Reading and discussion of Andersen's major works, including fairy tales, short stories, novels, autobiographies, and diaries. Reading and discussion in English. (F) Sanders

C107. Plays of Ibsen. (4) Three hours of lecture/discussion per week. Reading and discussion of Ibsen’s major plays. Readings and discussion in English. Also listed as Theater, Dance, and Performance St C107. (F,SP) Sandberg

C108. Strindberg. (4) Three hours of lecture per week. Reading and discussion of Strindberg’s major works; emphasis on his dramas and their significance. Readings and discussion in English. Also listed as Theater, Dance, and Performance. (F,SP) C108. (F,SP) Sandberg C114. Word and image. (4) Three hours of lecture per week. This course is designed to sharpen our skills in understanding what happens when the world of images and words meet. Starting with the work from the Western “classical” tradition we will proceed to the artistic landscape of the collage and the multimedia. Prerequisites: 100B: 101, 103, 104. Recommended. (F,SP) Sanders

115. Studies in Drama and Film. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. Variable subject matter; see departmental announcement for description. Sample topics: history of Scandinavian drama; history of Scandinavian cinema; 20th-century drama, the films of Ingmar Bergman and Carl Dreyer. Readings and discussion in English. (F,SP) Staff

116. Studies in Prose. (4) Course may be repeated with consent of instructor. Three hours of lecture/discussion per week. Variable subject matter; see departmental announcement for description. Sample topics: Knut Hamsun, Kierkegaard, H. C. Andersen, Isak Dinesen, and other storytellers. Readings and discussion in English. (F,SP) Staff

120. The Novel in Scandinavian. (4) Course may be repeated for credit. Three hours of inter-Scandinavian discussion per week. Reading and discussion of the great Scandinavian novels; the development of the novel. Readings and discussion in English. (F,SP) Staff

123. Viking and Medieval Scandinavia. (4) Three hours of lecture/discussion per week. Internal and external history of Scandinavian culture and civilization from the late eighth century through the 15th century. Readings and discussion in English. (F,SP) Lindow

125. Old Norse Literature. (4) Three hours of lecture/discussion per week. Reading and discussion of some of the Icelandic sagas and selections from the Eddas and skaldic verse. Readings and discussion in English. (F) Lindow

127. Scandinavia from 1520-1800. (4) Three hours of lecture and one hour of discussion per week. Scandinavian society, history, and culture from the Reformation through the Enlightenment. Staff

128. Scandinavia from 1800-the Present. (4) Three hours of lecture/discussion per week. Scandinavian society, history, and culture from the Napoleonic Era to the present. (SP) Staff

132. Introduction to Finnish Culture and History. (4) Three hours of lecture per week. Finnish culture, history, society, and arts. Readings and discussion in English. (F,SP) Staff

145. Senior Seminar. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: 140A-140B. Intensive study of a single topic, several reports, a longer paper. (F,SP) Staff

149. Major Studies. (1) One hour of discussion per week. Prerequisites: Knowledge of a Scandinavian language. Additional work, for majors in Scandinavian and other qualified students with permission of the instructor, in connection with one of the following: Scandinavian C107, C108, 115, 116, 117, 120, 165. Students attend lectures and do all written work in the “main course” and also read assignments in the Scandinavian languages and write a short paper. (F,SP) Staff

150. Studies in Scandinavian Literature. (4) Three hours of lecture/discussion per week. See departmental announcement for description. Sample topics: Scandinavian romanticism; the Modern Breakthrough; literature by and about women; the political tradition. Readings and discussion in English. (F,SP) Staff

160. Scandinavian Myth and Religion. (4) Three hours of lecture per week. Religious beliefs and practices during the Viking Age in Scandinavia and their manifestations in later recordings. Readings and discussion in English. Also listed as Religious Studies C108. (F,SP) Staff

165. Scandinavian Folklore. (4) Three hours of lecture per week. Scandinavian folklore, emphasizing oral narrative traditions (legends and folk belief, folktales, ballads) and their contexts. Such minor verbal forms as proverbs, riddles, and formulas will also be considered. Readings and discussion in English. (F,SP) Lindow

170. Arctic Folklore and Mythology in Nordic Lands. (4) Three hours of lecture per week. Survey of the folklore and mythology of the principal non-Scandinavian Nordic peoples. Prerequisites: Finn, (F) Greenland, Inuit. Comparative evidence from other circumpolar traditions and from ancient and modern Scandinavian tradition. Readings and discussion in English. (SP) Lindow

190AC. Special Topics in Scandinavian and American Cultures. (4) Course may be repeated for credit as topic varies. Three hours of lecture/discussion per week. Topics on ethnic relations in the United States, with partial focus on the experience of Scandinavians in America. Topics will vary but may include the study of whiteness and its boundaries, passing and masquerade in film and literature, ethnic identity in the American Midwest, etc. This course satisfies the American Cultures requirement. (F,SP) Rugg

190B. Group Study for Advanced Undergraduates. (2-4) Course may be repeated for credit. Directed study. Must be taken on a passed/not passed basis. Prerequisites: Two years study of one Scandinavian language. Advanced readings and interpretation of Scandinavian texts. (F,SP) Staff

199. Independent Study and Research. (2-4) Course may be repeated for credit. Directed study. Must be taken on a passed/not passed basis. Prerequisites: Two years study of one Scandinavian language. Courses in Scandinavian literature, culture, or history. Supervised study; restricted enrollment. (F,SP) Staff

201A. Old Norse. (4) Three hours of lecture per week. An introduction to the language of medieval Iceland and Norway. Grammar, historical phonology, and texts. (F) Lindow

201B. Norse Literature. (4) Three hours of lecture per week. Prerequisites: 201A or equivalent. Literary production of early Iceland and Norway. Reading of representative texts in the original. (SP) Lindow

202. Medieval Scandinavian Literature. (4) Three hours of lecture per week. Laws, historical writings, courtly works, Saxo Grammaticus,ballads. Emphasis on Denmark and Sweden. (F,SP) Lindow

203. Modern and Contemporary Scandinavian Literature. (4) Three hours of lecture/discussion per week. Reading and analysis of representative literary and cultural works. (F,SP) Staff

205. Studies in Romanticism and Realism. (4) Course may be repeated for credit. Three hours of lecture per week. Variable subject matter; see departmental announcement for description. Readings and analysis of representative works. Topics vary from semester to semester; see departmental announcement for description. (F,SP) Staff

249. Graduate Studies. (1) Course may be repeated for credit. One hour of discussion per week. Prerequisites: Graduate standing in Scandinavian. Additional work in connection with one of the following courses: Scandinavian C107, C108, 115, 116, 117, 120, 123, 125, C160, 165. Students attend lectures and do all written work in the “main course,” and also read assignments in the Scandinavian languages, and write a paper. (F,SP) Staff

250. Seminar in Scandinavian Literature. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. Reading and analysis of representative works. Topics vary from semester to semester; see departmental announcement for description. (F,SP) Staff

298. Special Study. (2-12) Course may be repeated for credit. Restricted field involving the writing of a report. May not be substituted for available seminars. (F,SP) Staff

299. Dissertation Writing. (2-12) Course may be repeated for credit. Supervised study. Must be taken on a satisfactory/unsatisfactory basis. (F,SP) Staff

*Professor of the Graduate School
Recipient of Distinguished Teaching Award

B prefix=language course for business majors
prefix=language course for independent study
prefix=honors course
R prefix=course satisfies R&C requirement
AC suffix=course satisfies American Cultures requirement

Scandinavian / 461

99. Individual Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Minimum 3.0 in courses and 3.0 in minor. Students with consent of instructor for lower division students. (F,SP) Staff

Upper Division Courses

100A. Scandinavian Languages and Linguistics. (4) Two hours of language instruction and one hour of lecture in the cultural component per week. Prerequisites: 1B, 3B, or 4B consent of instructor. Formerly 11, 13, 14. In the context of inter-Scandinavian communication, students will further develop their communicative competence, their reading and writing abilities and cultural understanding in their own target language (Danish, Norwegian, or Swedish). Workload: Three to two hours outside class per week with one hour of individual work in the Berkeley Language Media Center. Oral and written midterm and final. (F) Moller
462 / Scandinavian

601. Individual Study for M.A. Candidates. (1-8) Course may be repeated for credit. Supervised study. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive or language requirements in consultation with the field adviser. Units may not be used to meet unit or residence requirements for the master's degree. (F,SP) Staff

602. Individual Study for Doctoral Candidates. (1-8) Course may be repeated for credit. Supervised study. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the major field adviser to prepare qualified students for various examinations required of candidates for the Ph.D. May not be used to meet unit or residence requirements for the doctoral degree. (F,SP) Staff

Professional Courses

300A. Methods of Teaching Scandinavian Languages. (3) Course may be repeated for credit. Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. The course consists of a two-hour session per week that will examine current theory and practice of foreign language teaching in connection with Danish, Finnish, Norwegian, and Swedish. (F,SP) Moller

300B. Teaching Practicum. (1) Course may be repeated for credit. One hour of consultation per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate Student Instructor in the Scandinavian department. Graduate Student Instructors must enroll in 300B each semester following the completion of 300A or the equivalent. The course consists of a one-hour weekly session devoted to the analysis and discussion of pedagogical problems as they arise in the classroom. (F,SP) Moller, Staff

301. Scandinavian Teaching Methods. (3) Course is repeatable for credit each semester of employment as a graduate student instructor (GSI). Three hours of individual or group consultation per week. Must be taken on a satisfactory/unsatisfactory basis. Course on practical teaching methods, grading, testing, classroom interaction, design of course materials and syllabi. Required of all Scandinavian department GSIs. (F,SP) Staff

Science and Mathematics Education (College of Letters and Science)

Group Office: 4533 Tolman Hall, (510) 642-4207 gse.berkeley.edu/program/sesame/sesame.html

Faculty

Dor Abrahamson, Ph.D. Northwestern University. Mathematics cognition through the lenses of design-based frameworks (Education)

Alice M. Agogino, Ph.D. Stanford University. Artificial intelligence and expert systems, design theory and methods, engineering education, qualitative reasoning (Mechanical Engineering)

Norma Chappell, Ph.D. California Polytechnic State University. Cognitive processes in mathematics and science problem solving (Lecturer, Education)

Marian D. Diamond, Ph.D. University of California, Berkeley. Neuropsychology, environment, asymmetry, hormones (Integrative Biology)

Andreas a. diSessa, Ph.D. Massachusetts Institute of Technology. Interaction on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Survey of literature on design in instruction in science and mathematics, including development of computer-based instruction. Includes consideration of evaluation methods and development of instruction modules for topics in science and mathematics. (Education, Mathematics)

Randi Engle, Ph.D. Stanford University. Classroom discussions in science and mathematics (Education)

Bernard R. Gifford, Ph.D. University of Rochester. Organizational theory, policy analysis, resource allocation policies, fiscal stress management, technology and education (Chancellor's Professor)

Marcia C. Linn, Ph.D. Stanford University. Reasoning, cognition and technology, programming and problem solving, individual differences associated with gender (Education)

Carolyn Merchant, Ph.D. University of Wisconsin. Science and technology education, obtain philosophical perspectives cultural and social dimensions, ethical issues, gender (Environmental Science, Policy, and Management)

Michael Ramsey, Ph.D. University of Pittsburgh. Problem solving, lemma and recognition, computational models of cognition, naive physics, intelligent tutoring systems (Education)

Alan H. Schoenfeld, Ph.D. Stanford University. Psychology of mathematical problem solving, metacognition, belief systems (Education, Computer Science, Chair of SESAME)

Angela Stacy, Ph.D. Cornell University. Organic and physical chemistry (Chemistry)

Barbara Y. White, Ph.D. Massachusetts Institute of Technology. AI modeling of scientific expertise, computer-based learning environments, metacognition, instructional design (Education, Computer Science, Chair of SESAME)

Affiliated Member

Michael Clancy, Ph.D. Stanford University (Electrical Engineering and Computer Sciences)

Description of the Program

The Group in Science and Mathematics Education offers a graduate program designed to allow students to combine advanced training in one of the natural sciences, computer science/engineering, or mathematics with the pursuit of central interests in the area of education. Students enrolled in the program will be expected to attain in their chosen scientific discipline a degree of competence comparable to that of a departmental Ph.D. candidate in that discipline. Their thesis research will consist of a project dealing with the development of improved educational approaches research on new instructional models or basic research on learning or cognition in mathematics and science. Upon satisfactory completion of their studies and their thesis work, students will be awarded the degree of Ph.D. in science and mathematics education.

Admission Requirements

To enter the program, students must have an excellent academic record with a bachelor’s or, preferably, a master’s degree in a natural science, mathematics, or engineering/computer science. Experience teaching, developing instructional materials, or conducting educational or psychological research in these areas will also be favorably considered. Knowledge of psychology, cognitive science, education, or statistics is helpful but not required.

More detailed information about the program and its requirements can be obtained from the Group office.

Graduate Courses

210. Practicum in Science and Math Education Research and Development. (1-4) Course may be repeated for credit. One unit of credit for each four hours of student effort per week. Two hours of meeting per week. Prerequisites: Consent of instructor. Practical experience on an educational research or development project on campus or elsewhere for eight to 12 hours per week. Class meetings augment research experience with discussions of readings and interaction with guest speakers. (F,SP)

220C. Instructional Design in Science and Mathematics Education. (3) Three hours of lecture/discussion per week. Prerequisites: 220B or consent of the instructor. Survey of literature on design in instruction in science and mathematics, including development of computer-based instruction. Includes consideration of evaluation methods and development of instruction modules for topics in science and mathematics. (Education, Mathematics)

292. Research Seminar and Colloquium. (1) Course may be repeated for credit. Two hours of lecture/discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Discussion of current educational research carried on by students, faculty, and guest speakers. A written analysis of several presentations required. (F,SP)

294. Formulation of Educational Research. (1-3) Course may be repeated for credit. One unit of credit for each four hours of student effort per week. Individual conferences with instructor. Prerequisites: Consent of instructor. Development of thesis proposal under supervision of faculty member. (F,SP)

295. Research. (1-12) Course may be repeated for credit. One unit of credit for each four hours of student effort per week. Individual conferences. Prerequisites: Consent of instructor. Independent research activities under supervision of a faculty member. (F,SP)

299. Individual Reading and Study. (1-8) Course may be repeated for credit. One unit of credit for each four hours of student effort per week. Individual conferences. Prerequisites: Consent of instructor. Individual reading and study under the supervision of a faculty member. (F,SP)

602. Individual Study for Qualifying Examination. (1-8) Course may be repeated for credit. Course does not satisfy unit or residence requirements. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual study, under the supervision of a faculty member, designed to prepare the student for Ph.D qualifying examination. (F,SP)

Slavic Languages and Literatures (College of Letters and Science)

Department Office: 5030 DW Sail, (510) 642-2979 letters.berkeley.edu/dept/slavic

Professors

Ronelle Alexander, Ph.D. Harvard University. South Slavic languages, literatures, linguistics, folklore (Lecturer, Education)

David Frick, Ph.D. Yale University. Polish and pre-modern Slavic linguistics and literature (Emeritus)

Olga Match, Ph.D. University of California at Los Angeles. Russian literature and cultural history

Eric Naiman, Ph.D. University of California, Berkeley. Russian literature and culture

Johanna Nichols, Ph.D. University of California, Berkeley. Slavic linguistics and typology

Inna Paperno, Ph.D. Stanford University. Russian literature and cultural history

Viktor Zhviov, Ph.D. Moscow University. Russian linguistics

Associate Professors

Anne Nesbit, Ph.D. University of California, Berkeley. Russian literature and film

Harsha Ram, Ph.D. Yale University. Russian literature

Assistant Professor

Lyubov Golubt, Ph.D. Stanford University. Comparative literature, Russian literature and culture

Lecturers

Arakely Alexeev, Ph.D. University of California, Berkeley. Russian language, Slavic linguistics

Liza Little, M.A. University of Texas at Austin. Russian language, language teaching and technology, Slavic literature (Lecturer, Department of Russian Studies (Emeritus))

Anna Muza, Ph.D. State Institute of Theater Arts (GITIS; currently Russian Academy of Performing Arts)

Major Adviser: Ms. Alexander

Graduate Advisers: Ms. Paperno (Literature), Ms. Nichols (Linguistics)

Department Overview

The Department of Slavic Languages and Literatures provides instruction in the languages and cultures of Russian and other Slavic peoples—Bulgarian, Czech, Polish, and Bosnian, Croatian, Serbian (BCS)—as well as some of the non-Slavic peoples of Eastern Europe (Hungarian) and Eurasia (Armenian and Georgian). In addition to language and literature, our department teaches different aspects of Slavic cultures, including film, drama, visual arts, popular culture, critical theory, religious thought and cultural history.

Majors: The department offers three different major tracks. The major track in Russian/East European/Eurasian Cultures offers an interdiscipli-
requires three years of language coursework (or the equivalent). The major tracks in other Slavic languages and literatures allow students to focus intensively on Czech, Polish, or BCS (Bosnian, Croatian, Serbian).

Minors: The department offers a range of minors in Russian and other Slavic languages, literatures, and cultures. Students normally discuss the possibility of doing a minor with the faculty or staff major adviser well before graduation, although the paperwork is carried out in the last semester after the students complete the minor coursework. Courses used to satisfy major and minor requirements must be taken for a letter grade.

## Major Track in Russian/East European/Eurasian Cultures (50-52 units)

This major track integrates the study of languages and cultures of a large area: Russia, Eastern/Central Europe, and Eurasia. Students design their own programs by selecting courses offered by the Slavic department and other departments such as History, Sociology, Art, Political Science, Music, and Art Studies. While all majors in this track will gain some knowledge of the whole area, the program also allows each student to: (1) emphasize a specific cultural region, or (2) compare two or more different regions, or (3) define a particular field of study. Students are advised to see the major adviser in advance to prepare an individualized study plan. Note: Students may declare the major upon entry to the university, however; we encourage one year of study in the student’s major language prior to declaration.

### Requirements

#### Lower Division (22-24 units):

(1) Four semesters of one language of the area (18 to 20 units) or the equivalent, as determined by examination. The department highly recommends additional exposure to language, in coursework, intensive summer language programs, or the UC Education Abroad Program. Russian and East European heritagespeakers: See the department web site for language placement approval instructions.

### Languages offered by this department that can be used for the major are Russian, Polish, Czech, BCS (Bosnian, Croatian, Serbian), Bulgarian, Hungarian, Armenian, and Georgian. The following languages have been offered periodically in our department or other departments and may, by special arrangement, be used for this major track: Kazakh, Ingush, Chechen, Lithuanian, and others.

(2) One lower division course in the Slavic department: Slavic 50, Introduction to Russian, East European and Eurasian Cultures. With permission of the major adviser, it may be possible to substitute another lower division course in the department relevant to the major, e.g., Slav 37, 39, 45, 46.

#### Upper Division (28 units):

(1) One cultural topics course: Slavic 149, Topics in Russian Cultural History, or Slavic 158, Topics in Eastern Europe and Eurasian Cultural History.

(2) One relevant course in the Department of History, e.g., History 171A, 171B, or 171C; 172; 173; 175A; 177A or B.

(3) Five courses chosen from the upper division offerings of the Slavic department, and the following courses from outside departments: Geography 55C; Political Science 129B, 129C, 141A, 141C; Sociology 181. With permission of the major adviser, students may substitute relevant courses from the following departments: Anthropology, Art History, Comparative Literature, Economics, Journalism, Legal Studies, Peace and Conflict Studies, Theater, Dance, and Performance Studies.

Up to three elective courses may be taken in departments other than Slavic.

Up to two upper division language courses in the Slavic department, taken in addition to the initial four semesters of language, can be counted toward this requirement. Up to two lower or upper division courses in a second language relevant to the program of study can be counted toward these electives.

### Major Track in Russian Language and Literature (53-56 units)

This major track integrates the study of Russian language, literature, institutions, and culture. Students will learn what defines Russia’s unique place in civilization, both in earlier times and in today’s world.

### Requirements

Students may declare the major after completion of Slavic 2 and either Slavic 45 or 46.

#### Lower Division (26 units):

(1) The first four semesters of Russian (Slavic 1 2, 3, 4) or the equivalent. Russian heritage students: See the department web site for language placement approval instructions.

(2) Nineteenth- and 20th-century surveys of Russian language and literature.

#### Upper Division (27-30 units):

(1) Advanced Russian language (Slavic 103A, 103B) and Russian conversation (Slavic 120A or 120B).

(2) One literature course with readings in Russian (Slavic 180, 181, 182 or 188).

(3) One Russian literature class in English translation (Slavic 131, 132, 133, 134A, B, C, D, E, F, G, N, or 146).

(4) One course in culture selected from the following: Russian culture (Slavic 130, 140, 141, 148, 190), or the literatures of other Slavic peoples (Slavic 150, 160, 170), folklore (Slavic 147A or 147B), linguistics (Slavic 137), or film (Slavic 138).

(5) Two additional upper division elective courses (3 or 4 units each) in Russian language, literature, or culture selected from the courses listed above. Relevant courses from other programs—or for example, history—may be substituted with the permission of the major adviser.

### Minor Track in Russian, Polish, or BCS (Bosnian, Croatian, Serbian) Language and Literature (53-56 units)

With advance consultation, students may pursue a major track in Czech, Polish, or BCS (Bosnian, Croatian, Serbian).

### Requirements

In addition to Slavic 1 and 2 (10 units of elementary Russian) and two lower division courses in literature and culture chosen from 36, 37, 39, 45, 46, or 50 (6 units), the requirements include:

- (1) 10 units of the relevant elementary language [Slavic 25A-25B (Polish), 26A-26B (Czech), 27A-27B (BCS: Bosnian, Croatian, Serbian)].

- (2) 8 units of intermediate language (Slavic 115A-115B, 116A-116B, or 117A-117B).

- (3) 3 units of the survey course in the relevant literature (Slavic 150, 160, or 170; or with the appropriate content and permission of the major adviser, Slavic 158).

- (4) 7 units of two additional courses in the relevant literature in the original (Slavic 151-152, 161-162, or 171-172).

(5) A plan of study, designed in advance in consultation with the major adviser, consisting of three relevant courses (9-12 units) in Russian or European literature and history.

### Honors Program

Slavic majors with a minimum GPA of 3.3 overall and in courses for the major are invited to consult with members of the faculty and the major adviser in the spring of their junior year about the honors program and a thesis topic. Requirements for the honors program in Slavic include: (1) an additional upper division Slavic course chosen by the student, and (2) an honors thesis course (H195). In the honors thesis course, normally taken during the fall semester of the senior year, the student will write a thesis under the direction of a member of the faculty (the thesis director). In order to enroll in H195, students must file an application with the department (available from the undergraduate student affairs officer). This application includes a preliminary statement of the thesis topic and the faculty and signature of members of the honors committee, consisting of a faculty director and one additional faculty member, who also reads the completed thesis, and the department chair.

## Minor Tracks

The department offers minors in: (a) Russian language, (b) Russian literature (requiring no knowledge of Russian), (c) Russian language, literature, and culture, and (d) Slavic languages and literatures with an emphasis in either Czech, Polish, or BCS (Bosnian, Croatian, Serbian) language and literature.

### Requirements

The basic course requirement for each of the minors is five upper division courses, all completed for a letter grade. Three of them must be completed at Berkeley. The minor is in a field academically distinct from the student’s major. An overall GPA of 2.0 in upper division courses applied to the minor program is required. Students must see the major adviser early on to formulate a study plan leading to the completion of a minor. The minor paperwork (“Completion of L&S Minor” form) is completed with the major adviser in the student’s final semester at Berkeley.

**Restrictions to Minor Tracks:** (1) Russian native speakers may choose only the minor in Russian literature; (2) Russian heritage speakers may choose any minor except the minor in Russian language; and (3) native or heritage speakers of an East European language may choose any minor that does not utilize their native/heritage language. **Note:** Native or heritage proficiency is determined by the major adviser in consultation with the relevant faculty language coordinator. Final approval for a minor rests with the major adviser.

### Minor in Russian Language, Literature and Culture

**Prerequisites:** Four semesters of elementary and intermediate Russian (Slavic 1, 2, 3, and 4, or equivalent). Russian heritage speakers: See the department web site for language placement approval instructions.

Five upper division courses (3 or 4 units each) in Russian language and Russian or other Slavic literatures and cultures. Students may choose courses in any combination, in consultation with the major adviser. A course from another related program (for example, Comparative Literature) may be substituted with approval of the major adviser.

### Total lower division units: 20

### Total upper division units: 15-20

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*Professor of the Graduate School
Recipient of Distinguished Teaching Award
Certificate in Russian and East European Studies

Slavic students who wish to enroll for the certificate must be in the Ph.D. program and have completed one year of study. Students who wish to begin work for the certificate earlier need the approval of their graduate adviser. See the “Index” in this catalog and the graduate assistant for additional information.

Admission to Graduate Study

Candidates for higher degrees must have completed an undergraduate major program in Slavic languages and literatures or related equivalent training. Prospective and current students are encouraged to acquire a background in other related fields: European languages and literatures (especially French, German, and Italian); Slavic history, theory, Russian and Western European intellectual history are useful for candidates in literary studies; for those in linguistics, preparation in structural—grammatical analysis and theory, structural and cultural history of a major language, and comparative philology; (c) an extended written research project under faculty supervision and evaluation on a topic relative to the student’s field of study and interests. (c) Written and oral Ph.D. examinations. (d) A dissertation.

Linguistics: The Ph.D. program in Slavic linguistics consists of: (a) required coursework in a set of core courses covering comparative Slavic linguistics, advanced structure of Slavic languages, history of Slavic literary languages, and two semesters of a third Slavic language; (b) additional courses and seminars in two of three fields of specialization—grammatical analysis and theory, structural and cultural history of a major language, and comparative philology; (c) an extended written research project under faculty supervision and evaluation; (d) written and oral Ph.D. examinations; and (e) a dissertation.

All candidates for the Ph.D. must pass a written and oral examination in their major Slavic language and demonstrate reading knowledge of at least two languages other than their major language (to be selected from French, German, and a second Slavic language).

Institutional language-teaching methodology is provided for graduate student instructors and prospective teachers of Russian, Polish, Czech, and BCS (Bosnian, Croatian, Serbian). Internships (Slavic 310) are available in the teaching of literature or Slavic linguistics.

Czech

Lower Division Courses

26A-26B. Introductory Czech. (5,5) Five hours of lecture per week. Prerequisites: 26A is prerequisite to 26B. Beginner’s course. Sequence beginning fall. (F,SP) Staff

Upper Division Courses

116A-116B. Advanced Czech. (4,4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 26B is prerequisite to 116A. 116B is prerequisite to 116A. Sequence begins fall semester. (F,SP) Staff

160. Survey of Czech Literature. (3) Three hours of lecture per week. Outline history of Czech literature from the tenth century to the present, including medieval literature of the 14th century, the National Revival of the 19th century, and the modern period. No knowledge of Czech required. Staff

161. Readings in Czech Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion per week. Prerequisites: 26A is prerequisite to 116A. 116B is prerequisite to 116A. 116A is prerequisite to 116B. Sequence begins fall semester. (F,SP) Staff

162. Topics in Czech Language and Literature. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 116A (may be taken concurrently). Studies in Czech literature, linguistics, or conversation, depending on the needs of the students enrolled. Staff
Polish

Lower Division Courses

25A-25B. Introductory Polish. (5) Five hours of lecture per week. Prerequisites: 25A is prerequisite to 25B. Beginner’s course. Sequence beginning fall. (F,SP) Staff

Upper Division Courses

115A-115B. Advanced Polish. (4,4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 25B is prerequisite to 115A; 115B is prerequisite to 115B. Sequence begins fall semester. (F,SP) Frick

151. Readings in Polish Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion per week. Prerequisites: 115A. Selected readings in Polish tailored to the academic interests of students enrolled. Frick

Russian Language

Lower Division Courses

1. Elementary Russian. (5) Five hours of lecture and two hours of language laboratory per week. Beginner’s course. (F,SP) Staff

2. Elementary Russian. (5) Five hours of lecture and two hours of language laboratory per week. Prerequisites: 1, 14A, or equivalent. (F,SP) Staff

3. Intermediate Russian. (5) Five hours of lecture and one hour of language laboratory per week. Prerequisites: 2, 14B, or equivalent. (F,SP) Staff

4. Intermediate Russian. (5) Five hours of lecture and one hour of language laboratory per week. (F,SP) Staff

6A-6B. Introductory Russian for Heritage Speakers. (3,3) Three hours of lecture per week. Prerequisites: Basic proficiency in Russian; placement test and consent of instructor. The course is aimed at “heritage speakers” of Russian, i.e., those who grew up speaking Russian in the family without a full Russian educational and cultural background. These courses are designed for students who have speaking and comprehension ability in Russian but have minimum exposure to writing and reading. This course teaches basic skills of writing, reading, and grammar. 6A focuses on basic writing and reading ability. 6B introduces further knowledge of grammar and syntax and develops writing skills. Both 6A and 6B include reading and oral work. Students with advanced reading proficiency should consider Slavic 114 or Slavic 190. (F,SP) Staff

Upper Division Courses

101. Advanced Russian Phonetics and Oral Performance. (1-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 4, 14D or equivalent. Adulted course. Required at both undergraduate and graduate students, this course helps students to improve their pronunciation, bringing it closer to the native level. The course teaches a whole spectrum of oral speech performance, including phonetics, intonation, and rhetoric, taking into account different functional styles. Course may be taken for 1 unit (five weeks: basic skills), 2 units (10 weeks: advanced skills) or 3 units (15 weeks: advanced phonetics and performance). (F,SP) Alexeev

103A-103B. Advanced Russian. (4,4) Four hours of lecture per week. Prerequisites: 4, 14D, or equivalent. Course covers three main aspects of advanced Russian: grammar, syntax, and reading. Grammar is reviewed. Course taught in Russian. (F,SP) Alexeev

105A-105B. Advanced Russian/English/Russian Translation. (1-3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 1, 2, 3, 4, or equivalent, or consent of instructor. Advanced training in both oral and written translation skills covering various areas of politics, business, tech-
nology, law, science, and culture. Elements of literary and poetic translation. Course may be taken for one unit (five weeks: basic translation skills), two units (10 weeks: advanced translation skills), or three units (15 weeks: professional skills). (F,SP) Alexeev

106A-106B. Advanced Russian for Heritage Speakers. (3,3) Three hours of lecture per week. Prerequisites: Advanced speaking and reading proficiency in Russian, placement test, and consent of instructor. The course is aimed at “heritage speakers” of Russian, i.e., those who grew up speaking Russian in the family without a standard Russian educational background. The advanced course aims at building a sophisticated vocabulary, developing advanced reading ability, formal knowledge of grammar, and complete writing competency. This course fosters students’ knowledge and understanding of Russian culture and behavior in general, and one-to-one reading and speaking proficiency should consider 6A or 6B by consent of instructor. (F,SP) Staff

109. Business Russian. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 103B or equivalent; consent of instructor. This course is designed for students with a good command of basic Russian who would like to gain the vocabulary of business transactions in Russian to be able to establish actual contacts with Russian businesspeople, to participate in business contracts in Russia, and to read Russian business magazines and newspapers. Elements of the business law of Russia will also be discussed. (F,SP) Alexeev

114. Advanced Self-Paced Russian for Heritage Speakers. (1-6) Course may be repeated for a maximum of 6 units. Individual conferences. Prerequisites: Advanced speaking and reading proficiency in Russian; placement test and consent of instructor. The course is aimed at “heritage speakers” of Russian, i.e., those who grew up speaking Russian in the family without a native Russian’s full educational and cultural background. The advanced course aims at building a sophisticated vocabulary, developing advanced reading ability, formal knowledge of grammar, and complete writing competency. The course is organized around students’ individual needs and abilities. The course can be taken for two semesters not to exceed the maximum of 6 units. Students with no or rudimentary reading proficiency should consider Slavic 114 or Slavic 190. (F,SP) Staff

120A-120B. Advanced Russian Conversation and Communication. (2-3,2) Course may be repeated for credit. Two to three hours of lecture per week. Prerequisites: 4 or equivalent. Formerly 120. Aimed at fostering advanced conversation and communication skills. Students will learn how to establish actual contacts with Russian businesspeople. Contains reading, films, vocabulary building, listening exercises, and speaking activities. The course can be taken for two or three credits; for two credits, attendance is required for two classes per week; for three credits, three classes per week. (F,SP) Staff

Russian Literature

Lower Division Courses

36. Great Books of Russian Literature. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 36 recommended. 39 Readings in English of representative texts from the Russian literary tradition. Variable topics. (F,SP) Staff

45. Nineteenth-Century Russian Literature. (3) Three hours of lecture per week. Development of Russian literature from Pushkin to Chekhov. No knowledge of Russian is required. Students must be enrolled in the Slavic major and recommended for prospective graduate students. (F) Golburt, Staff

46. Twentieth-Century Russian Literature. (3) Three hours of lecture per week. Development of Russian literature from 1900 to the present: modernism, Soviet, and emigre literature. No knowledge of Russian required. Prerequisite to admission to the Slavic major and recommended for prospective graduate students. (SP) Match, Staff

Upper Division Courses

130. The Culture of Medieval Rus’. (4) Three hours of lecture per week. Introduction to the cultures of East Slavic peoples including history, mythology, Christian religious culture, literature (writing), icon painting, and architecture. (SP) Zhitnik

131. Literature, Art, and Society in 20th-Century Russia. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. A lecture course examining Russian culture in the 20th century. The course will focus on the interaction of literature, other artistic forms (photography, film), and broader social and ideological changes in one of the most turbulent periods of the 20th century. Periods to be examined include the transition to Communism in the post-revolutionary ‘20s and the retreat from Communism (the perestroika ‘80s and the post-Communist period). No knowledge of Russian is required. (F,SP) Ram

132. Dostoevsky, Tolstoy, and the English Novel. (4) Three hours of lecture per week. A reading of novels by Dostoevsky and Tolstoy along with some relevant English novels. We will look at how the Russian and English novels reflect general trends, resemble each other, and differ from each other, especially in their treatment of childhood, family, love, social theory, spirituality, and narrative. (F,SP) Staff

133. The Novel in Russia and the West. (4) Course may be repeated once for credit with consent of instructor. Three hours of lecture per week. Study of major Russian and Western (European and American) 19th- and 20th-century novels, and their interrelations. Variable reading list. See department announcement for details. Staff

133R. Research in Russian Literature. (1) Individual consultation. Research project to be approved by the instructor. Prerequisites: Consent of instructor. Special research project to be coordinated with lecture course, Slavic 133Y. Formerly "The Extensive Outside of Russian Literature," now changed to "The Novel in Russia and the West". Supervised by the instructor of the lecture course in which the student is also enrolled. Final research paper of 10-15 pages required. (F,SP) Golburt, Staff

134A. Gogol. (4) Three hours of lecture per week. Gogol’s fiction and plays, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course. (F,SP) Nester

134C. Dostoevsky. (4) Three hours of lecture per week. A survey of the writer’s principal artistic works, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course. (F,SP) Match, Staff

134D. Tolstoy. (4) Three hours of lecture per week. A survey of the writer’s principal artistic works, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course. (F,SP) Match, Staff

134E. Chekhov. (3) Three hours of lecture per week. Studies in the innovative master of modern narrative form. The story, drama, short stories, and the to and the life and times of Anton Chekhov. Practice in critical approaches to literature and theater. Writing-intensive course. (F,SP) Muza, Staff

134F. Nabokov. (4) Three hours of lecture per week. A thorough examination of Nabokov’s work as a novelist, critic, and memoirist. Explores Nabokov’s fiction from his European and American periods, his (imagined) relation to literary predecessors, and his concerns in the realm of the arts. (F) Golburt, Staff

134G. Tolstoy and Dostoevsky. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. A survey of the writer’s principal artistic works, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course. (F,SP) Naiman, Staff

134H. Tolstoy and Dostoevsky. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. A reading of major works by Tolstoy and Dostoevsky in the context of Russian and European philosophy and religious thought. Extensive

B prefix=language course for business majors
C prefix=course satisfies R&C requirement
A suffix=course satisfies American Cultures requirement
H prefix=honors course
R prefix=course satisfies R&C requirement
A suffix=course satisfies American Cultures requirement

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

Slavic Languages and Literatures / 465
### Graduate Courses

248. Topics in Russian Cultural History. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This seminar addresses the problems and methods of cultural history within the Russian context. Special attention will be given to the social, political, and historical matrices which determine (and may be determined by) aesthetic production, as well as to the role of the cinema in Soviet culture and Russian film history and theory, with particular attention paid to the complex oral tense-mood system and readings in contemporary Bulgarian prose.

Bulgarian

**Lower Division Courses**

28A-28B. Introductory Bulgarian. (5-5) Five hours of lecture per week. Prerequisites: 28A is prerequisite for 28B, or consent of instructor. Sequence begins in the fall. Practical instruction in the Bulgarian language with a focus on integrated skills (reading, grammar, conversation). Course offered as staffing permits. (F,SP) Staff

Upper Division Courses

118A-118B. Advanced Bulgarian. (4,4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 28B is prerequisite to 118A, 118A is prerequisite to 118B, or consent of instructor.

A. This course consists of a review of a Bulgarian grammar covered in 28A-B. Students will be introduced to the complex verbal tense-mood system and readings in contemporary Bulgarian prose.

B. This course is a continuation of 118A. It also introduces the question of the relationship between Bulgarian and Macedonian and readings in Bulgarian belletristic poetry and prose. (F,SP) Alexander

**General and Other Slavic**

### Lower Division Courses

R5A-R5B. Reading and Composition. (4,4) Three hours of lecture per week. Prerequisites: UC Entry-Level Writing Requirement or equivalent for 5A; 5A or equivalent for 5B. Formerly 5A. Reading and composition course based on works of Russian and other Slavic writers, either written in Russian or translated into English. As students develop strategies of writing and interpretation, they will become acquainted with a particular theme in Russian and/or Slavic literatures and their major voices. R5A satisfies the first half of the Reading and Composition requirement, and R5B satisfies the second half. (F,SP) Staff

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. This seminar addresses the problem of interpreting and making sense of history, with a focus on the Russian past. The seminar will be structured around the question of how to read and interpret historical sources. Students will work with a faculty member and a group of peers in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Three hours of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman/sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP) Staff

50. Introduction to Russian/East European/Eurasian Cultures. (3) Three hours of lecture per week. This course introduces students to the cultures of the peoples of the former Soviet bloc (Russia and other areas of the former Soviet Union, including Central Asia and the Caucasus, and Eastern Europe), from early times to the present, with an emphasis on cultural identity. Readings in history, fiction, folklore, viewing of films, and art works. Thematic units include: formation of the Russian civilization, Slavic nationalism in the Romantic era, empire and identity in Eastern/Central Europe; Soviet and post-Soviet daily life; Jews in Slavic lands, the former Yugoslavia; multi ethnic lands; and the required of majors in Russian/East European/Eurasian cultures, the course is also aimed at a broad audience. Knowledge of the languages of the area is not required. (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of semi-
198. Supervised Group Study for Undergraduates. (1-4) Course may be repeated for credit. Variable. (Minimum of one meeting per week and individual (F,SP) Prerequisites: Students must have completed 60 units of undergraduate study and have a minimum GPA of 3.0. Supervised cooperative study of topics (in Slavic and East European languages and literatures) not covered by regularly scheduled courses. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Overall GPA of 3.0. (F,SP) Staff

98. Directed Group Study. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: 3.0 GPA. Supervised independent study for lower division students with a minimum 3.0 GPA. (F,SP) Staff

99. Individual Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: 3.0 GPA. Supervised independent study for lower division students with a minimum 3.0 GPA. (F,SP) Staff

Upper Division Courses

C139. Language Spread. (3) Three hours of lecture per week. Linguistic background and the general principles of language spread. Mechanisms of language spread including creolization-decreolization, language planning, and the role of bilingualism. Case studies in language spread, including Austronesian, Indo-European, Amerindian, Uralic, African, Sinic, and Austronesian. The relationship of language spread to immigration and culture spreads. Also listed as Linguistics C139. Nichols, Rhodes

140. The Performing Arts in Russia and Eastern Europe. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. The course centers on the Russian and East European contribution to the practice and theory of the performing arts, especially (but not exclusively) theater. The course emphasizes the involvement of the performing arts in the social and cultural fabric. (F,SP) Muza, Staff

147A. East Slavic Folklore. (3) Course may be repeated once for credit with consent of instructor. Three hours of lecture per week. Folktales, epic songs, customs, and beliefs of the Slavs and other Balkan peoples. (F,SP) Alexander

147B. Balkan Folklore. (3) Three hours of lecture per week. Folktales, epic songs, customs, and beliefs of the South Slavs and other Balkan peoples. (F,SP) Alexander

147R. Slavic Studies Research. (1) Individual consultation. Research project to be approved by the instructor. Prerequisites: Consent of instructor. Special research project to be coordinated with lecture course for Slavic 147. Supervised by the instructor of the lecture course in which the student is also enrolled. Final research paper of 10-15 pages required. (F,SP) Alexander

158. Topics in East European/Eurasian Cultural History. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. This course examines various dimensions of different East European and Eurasian (Central Asia, the Caucasus, Siberia) cultures (history, society, languages, literature, art). Variable topics. Instruction and readings in English; students with knowledge of the languages of the area are encouraged to do some reading in the original language. (F,SP) Staff

H195. Honors Seminar. (4) Individual conferences. Prerequisites: Overall and major GPA of 3.3. Study and research on a topic selected by the student in consultation with the faculty advisor, to culminate in the writing of a thesis. See departmental description of the Honors Program. (F,SP) Staff

200. Graduate Colloquium. No credit. Must be taken on a satisfactory/unsatisfactory basis. Reports on current scholarly work by faculty and graduate students. (F,SP) Staff

201. Advanced Russian Proficiency Maintenance. (2-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Graduate standing; 103B or equivalent; consent of instructor. (SP) Staff

210. Old Church Slavic. (4) Three hours of lecture per week. Prerequisites: Reading knowledge of a modern Slavic language or consent of instructor. Staff

214. Medieval Orthodox Slavic Texts. (4) Three hours of lecture/discussion per week. Prerequisites: Reading knowledge of a modern Slavic language or consent of instructor. Staff

222. Descriptive Grammar of Slavic Languages. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Knowledge of the language, survey of morphology and syntax of a contemporary Slavic language (Czech, Polish, Russian, or Serbian/Croatian); see departmental announcement for topic. Recommended for prospective teachers. (SP) Staff

230. Historical Grammar of Slavic Languages. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 210. Historical phonology, morphology, and syntax of a Slavic language (Czech, Polish, Russian, or Serbian/Croatian); some coverage of dialectology. See department announcement for topic. (F) Staff

231. History of Slavic Literary Languages. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Advanced knowledge

Slavic

Graduate Courses

240. Sociolinguistics. (4) Three hours of lecture per week. Prerequisites: 220. Linguistics. (F,SP) Staff

241. The Russian Novel and Literatures of Western Europe. (4) Three hours of lecture per week. The development of the 19th-century Russian novel and its sources in and links with Western literary works and movements. (F,SP) Staff

242. Eighteenth-Century Russian Literature. (4) Three hours of lecture per week. Studies in poetry, drama, and fiction, covering major figures between 1730 and the end of the century. (F) Zhivot, Staff

243. The Russian Novel and Literatures of Western Europe. (4) Three hours of lecture per week. The development of the 19th-century Russian novel and its sources in and links with Western literary works and movements. (F,SP) Staff

245A. Russian Sentimentalism and Romanticism (1790s-1840s). (4) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor; adequate knowledge of Russian. Coverage of major movements and genres in the intellectual context of the times. Readings in Russian. (F,SP) Staff

245B. Russian Realism (1840s-1900). (4) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor; adequate knowledge of Russian. Coverage of major movements and genres in the intellectual context of the times. Readings in Russian. (F,SP) Staff

246A. Russian Modernism (1890s-1920s). (4) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor; adequate knowledge of Russian. Coverage of major movements and genres in the intellectual context of the times. Readings in Russian. (F,SP) Staff

246B. Contemporary Russian Literary Literature (1920- and after). (4) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor; adequate knowledge of Russian. Coverage of major movements and genres in the intellectual context of the times. Readings in Russian. (F,SP) Staff

256. Topics in Slavic Folklore. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Graduate standing; consent of instructor. Selected topics in Slavic folklore, with focus on contributions to folklore theory based on Slavic material. (F,SP) Alexander

258. Languages, Peoples, and Cultures of the Greater Slavic World. (4) Three hours of lecture per week. Prerequisites: Graduate standing, knowledge of target languages, consent of instructor. Topics in the languages, peoples, and cultures of Eastern and Central Europe, the CIS, and Balkan. Topics vary as to region (e.g., Northeastern Europe, the Baltic Coast, the Caucasus) and approach (e.g., sociolinguistics, ethnolinguistics, studies of ethnic and language minorities). Readings include materials in the original languages of the area. (F,SP) Staff

280. Studies in Slavic Literature and Linguistics. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing; consent of instructor. Advanced studies in the several fields of Slavic literatures and linguistics. Content varies. (F,SP) Staff

281. Proseminar: Aims and Methods of Literary Scholarship. (4) Three hours of seminar per week. Course designed for new graduate students in literature. Introduction to modern literary theory and
criticism; principles of textual analysis; methods of bibliographical research. (F) Staff

282. Proseminar: Aims and Methods of Linguistic Scholarship. (4) Three hours of seminar per week. Course designed for new graduate students in Slavic linguistics, as well as general and Slavic linguistics, Slavic philology, semiotics, and the relation of linguistics to literary studies. Methods of research and critical analysis. Current issues and goals of research. (F) Staff

285. Eastern Christianity: History and Thought. (4) Three hours of lecture per week. A survey of the religious history and thought of Eastern Europe and the Levant with an intent of providing greater insight into the shaping of faith and cultures of both halves of Europe. (F) Zhivov, Staff

287. Russian Poetry. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Open to qualified undergraduates. Class conducted in Russian. Russian poetry from the 19th, 20th, and 21st centuries: close readings of texts. Variable topics. Topics vary annually. (F,SP) Staff

298. Special Study for Graduate Students. (2-6) Course may be repeated for credit. Individual conferences. Preliminary exploration of a restricted field involving research and a written report. (F,SP) Staff

299. Directed Research. (2-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive or language requirements in consultation with a field adviser. (F,SP) Staff

601. Individual Study for Master's Students. (2-4) Course may be repeated for a maximum of 16 units. May not be used to satisfy unit or residence requirements for a master's degree. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Normally reserved for students directly engaged upon the doctoral dissertation. (F,SP) Staff

602. Individual Study for Doctoral Students. (2-4) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for a doctoral degree. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with a major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff

Professional Courses

301. Slavic Teaching Methods. (3) Course to be repeated for credit each semester of employment as graduate student instructor. Group and individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Course on practical teaching methods, grading, testing, and design of supplementary course materials. Required of all graduate student instructors in Slavic. (F,SP) Staff

310. Introduction to the Teaching of Literature/Linguistics. (1-2) Course may be repeated for credit. One two-hour conference per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Weekly meetings with the instructor of the designated course. Discussion of course aims, syllabus preparation, lecture and assignment planning, grading, and related matters. Students may prepare a representative portion of the work for such a course (e.g., lecture outline and assignments for a course segment) and may participate in presentation of the material and in evaluation of samples of student work. (F,SP) Staff

East European Studies

Lower Division Courses

1A-1B. Introductory Hungarian. (3,4,3,4) Three hours of lecture per week plus language laboratory assignments. Prerequisites: 1A is prerequisite to 1B; consent of instructor. Practice in the Hungarian language. The course can be taken for either 3 or 4 units; the additional unit involves language laboratory work and additional written reading assignments. (F,SP) Staff

2A-2B. Introductory Romanian. (3,3) Three hours of lecture per week. Prerequisites: 2A: None. 2B: 2A is prerequisite to 2B or consent of instructor. The course will focus on reading and comprehension, elementary speaking and writing, providing fundamental grammatical and lexical competence for further language acquisition in Romanian. (F,SP) Staff

Upper Division Courses

100. Readings in Hungarian. (2) Course may be repeated for credit. Two hours of lecture/discussion per week. Prerequisites: 1B or equivalent. (F,SP) Staff

Eurasian Studies

Lower Division Courses

1A-1B. Beginning Armenian. (3,3) Three hours of lecture per week. Prerequisites: 1A: None. 1B: 1A or equivalent; consent of instructor. An introduction to Armenian language and culture, aiming to give students basic competence in all four skills and an introduction to traditional and contemporary Armenian culture. (F,SP) Staff

2B. Beginning Georgian. (3) Three hours of lecture per week. Prerequisites: 2A or equivalent; consent of instructor. An introduction to Georgian language and culture, aiming to give students basic competence in all four skills and an introduction to traditional and contemporary Georgian culture. (F,SP) Staff

99. Individual Study. (3) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Three hours of tutorial per week. Must be taken on a passed/not passed basis. Prerequisites: Freshman or sophomore standing. Overall GPA of 3.0. Individual conferences. (F,SP) Staff

Upper Division Courses

101A-101B. Continuing Armenian. (3,3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 1A-1B or consent of instructor. The purpose of this course is to further develop students' Armenian proficiency in all four language skills, using discussions, presentations, written assignments, and a variety of readings (literature, non-fiction, folklore, newspaper articles, etc.) chosen partly for its cultural significance and partly based on student needs and interests. Emphasis on particular skills (e.g., reading) depending on student needs and interests. (F,SP) Staff

199. Supervised Independent Study for Undergraduates. (3) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Overall GPA of 3.0. (F,SP) Staff

Graduate Courses

289. Studies in the Languages of the Caucasus and Central Asia. (2-4) Course may be repeated for credit. One hour of class meeting per week per unit. Prerequisites: Consent of instructor.Formerly Slavic 289. Topics in the history, structure, and typology of the indigenous languages of the Caucasus and Central Asia. Variable subject matter. Offerings include practical courses in Armenian, Ingush, Chechen, Kazakh, Uzbek, etc. Theoretical topics include: the Caucasus as a linguistic area, the structure of Georgian, the structure of Ingush, computational lexicography of Ingush, the structure of Chechen, Nakh-Daghestanian comparative grammar, Northwest Caucasian (Abkhaz-Circassian) languages, etc. (F,SP) Nichols

Social Welfare

School of Social Welfare

School of Social Welfare Office: 120 Haviland Hall, (510) 642-4341
socialwelfare.berkeley.edu
Dean: Lorraine Midanik, Ph.D.
Assistant Dean: Andrew E. Scharlach, Ph.D.
Director of Field Work: Bart Grossman, Ph.D.
Assistant Dean for Admissions: James C. Steele
Assistant Dean for Field Education:
Rafael Herrera, M.S.W., L.C.S.W., D.C.S.W.

Professors

Michael J. Austin, Ph.D. University of Pittsburgh
Management and planning, community organization
Jill L. Berrick, Ph.D. University of California, Berkeley.
Welfare and child policy
Mary M. Cavanaugh, Ph.D. University of Pennsylvania
Medical College of Pennsylvania and Hahnemann University.
Intimate partner violence, forensic social work
Eileen D. Gambrell, Ph.D. University of Michigan.
Child welfare, mental health
Neil Gilbert, Ph.D. University of Pittsburgh.
Social policy, international social work
William McKinney Runyan, Ph.D. Harvard University.
Adult development
Andrew E. Scharlach, Ph.D. Stanford University.
Gerontology
Steven P. Segal, Ph.D. University of Wisconsin.
Mental health
Lonnie R. Snowden Jr., Ph.D. Wayne State University.
Social support, cross-cultural issues
Yu-Wen Ying, Ph.D. University of California, Berkeley.
Minority mental health, focus on Asian Americans
Jewelle Taylor Gibbs (Emeritus), Ph.D.
Ralph M. Kramer (Emeritus), D.S.W.
James R. W. Lesby (Emeritus), Ph.D.
Henry Miller, D.S.W. (Emeritus)
Leonard S. Miller (Emeritus), Ph.D.
Robert Pruger (Emeritus), D.S.W.
Kermit T. Wilte (Emeritus), D.S.W.

Associate Professors

Julian Chun-Chung Chow, Ph.D. Case Western Reserve University.
Community practice, immigration, urban poverty
Kurt O. Argansista, Ph.D. Arizona State University.
Latino/minority psychosocial adaptation, psychotherapy
Assistant Professors

Julia Hastings, Ph.D. University of California, Los Angeles.
Mental health policy, mental health
Susan Stone, Ph.D. University of Chicago.
School and family influences on child and adolescent school performance
Adjunct Professor

Bart Grossman, Ph.D. University of Michigan, Ann Arbor.
Field education

Field Work Consultants/Lecturers

Robert Ayasse, M.S.W. University of California, Berkeley
Bari Cornet, M.S.W., M.P.H. University of California, Berkeley
Valerie Edwards, M.S.W. University of California, Berkeley
Peter Manoles, M.S.W. University of Michigan, Ann Arbor
Gregory Merritt, M.S.W. San Francisco State University
Catherine Raph, M.S.W. University of California, Berkeley
Barrie K. Robinson, M.S.W., Kent State University

Lecturers

Claudia Alano, M.A. Harvard University
Mary Coombs, Ph.D. Rutgers University
Tom Coutney, M.P.A. University of San Francisco
Rafael Herrera, M.S.W., L.C.S.W., D.C.S.W.
University of California, Berkeley
Barrub Vrons, Ph.D. University of California, Berkeley
John Linder, M.S.W. University of California, Sacramento
Juliet Rothman, Ph.D. American University
Cathrine Ralph, M.S.W. University of California, Berkeley
Karen Richard, J.D. California State University, Los Angeles

Certificate Programs

AIDS Social Work

Director of Admissions: James C. Steele
Field Education:
Rafael Herrera, M.S.W., L.C.S.W., D.C.S.W.

Lecturers

Claudia Alano, M.A. Harvard University
Mary Coombs, Ph.D. Rutgers University
Tom Coutney, M.P.A. University of San Francisco
Rafael Herrera, M.S.W., L.C.S.W., D.C.S.W.
University of California, Berkeley
Barrub Vrons, Ph.D. University of California, Berkeley
John Linder, M.S.W. University of California, Sacramento
Juliet Rothman, Ph.D. American University
Cathrine Ralph, M.S.W. University of California, Berkeley
Karen Richard, J.D. California State University, Los Angeles
Undergraduate Program, College of Letters and Science

Under the jurisdiction of the College of Letters and Science, the School of Social Welfare administers the Undergraduate Major in Social Welfare leading to the A.B. degree. This liberal arts major, with a focus on the social sciences and core social welfare courses, introduces students to theories, policies, and methods in the social welfare field and allows students to test their career interest in social work before employment or graduate professional education. It also serves as a flexible preparation for majors in other fields.

The social welfare major admits up to 130 new students each year. Students should declare the major as soon as they have completed the required prerequisites. Students should begin the sequence of core social welfare courses with 110, continuing thereafter with 112, 114, and 116.

Undergraduate Major Requirements

Lower Division Prerequisites. Required: Introduction to Anthropology, Introduction to Sociology, Introduction to Statistics; completion of the Letters and Science Reading and Composition requirement. Recommended but not required for the major: Introduction to Anthropology, Introduction to Sociology, and one of the following courses: Introduction to Economics, or Introduction to Political Science.

Upper Division. A minimum of 29 upper division units taken for a letter grade, including Social Welfare 110, 112, 114, and 116; and a minimum of five approved social science electives. For a list of electives and further information on the major, contact the Social Welfare Undergraduate Office, 219 Haviland Hall; (510) 642-4407.

Honors Program. The honors program in social welfare provides an opportunity for qualified under-graduates to investigate thoroughly an area of interest related to a faculty member, and to produce a paper of some magnitude. Students who meet the eligibility requirements (a 3.3 GPA overall and in the major, and completion of Social Welfare 110 and 112) may enroll in H195 in their senior year. The fall H195 (1 unit) is a two-hour biweekly seminar addressing topic identification, library research, and the preparation of an annotated bibliography and essay prospectus. The spring H195 (3 units) is an individual tutorial in which students prepare the honors essay under the supervision of their faculty essay advisors.

Graduate Programs

The School of Social Welfare is a graduate professional school dedicated to educating social workers and social welfare scholars for a range of occupations in social services, and to preparing students to the School of Social Welfare and the profession of social work. Our educational emphasis is on preparing students for professional roles in the profession. Our educational emphasis is on preparing students for professional roles in the profession. These include recognizing the worth, uniqueness, and dignity of all individuals, fostering and strengthening the family and other systems of support, respecting cultural diversity, and promoting opportunity and social and economic justice for all.

The school offers the following programs:

Master of Social Welfare (M.S.W.). A two-year program of study for the Master of Social Welfare (M.S.W.) degree prepares students for advanced practice in social work. Classroom and field courses are designed to teach professionals to use tested knowledge and skill and research methods in their practice. Applicants for admission must have strong academic preparation in the liberal arts and sciences, including coursework in the social and behavioral sciences. In addition, introductory coursework in social welfare and social work, research methods, and quantitative reasoning is given special attention. Knowledge of the social welfare field and professional commitment to social work are also evaluated. Such knowledge and commitment are usually demonstrated in prior successful paid employment related to social welfare. Paid experience, however, is not a requirement for admission; those who demonstrate sufficient knowledge and commitment through voluntary experience may also qualify.

The M.S.W. program is accredited by the Council on Social Work Education.

Combined program, master-doctoral studies. Also offered is a combined program of master-doctoral studies which begins in the first graduate year and leads to both the Master of Social Welfare and the Ph.D. in Social Welfare degrees. Applicants must show evidence of their ability to complete doctoral study successfully and must have undergraduate preparation sufficient for the M.S.W. program.

Special programs. The school sponsors several special programs: the M.S.W./M.P.H. dual and concurrent degree courses, the Social Welfare/International and Area Studies dual degree program, the Social Welfare/Law Concurrent Degree Program, the Personnel Services Credential Program, and the Title IV-E Child Welfare Training Program.

The Ph.D. in Social Welfare. The Ph.D. in Social Welfare prepares students for careers in teaching, research, program and policy evaluation, and administration in the field of social welfare and the profession of social work. It is open to applicants who hold a master’s degree in social work or social welfare or have comparable preparation in a closely related field and who show evidence of intellectual and other qualifications essential to successful doctoral study.

Applications. Applications for admission to any of these programs are accepted at any time. They must be submitted as early as possible beginning in October and no later than December 1 for the Ph.D., M.S.W./Ph.D., and M.S.W./M.P.H., and January 5 for the M.S.W. for admission to the following academic year. Admission to the school is contingent on admission to graduate standing; for more information, see grad.berkeley.edu/admissions/index.shtml.

Consult our web site at socialwelfare.berkeley.edu or contact the School’s admissions office for more information.

Lower Division Courses

39. Freshman/Sophomore Seminar. Course may be repeated for credit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all academic departments and are scheduled for the department and from semester to semester. (F,SP)

97. Field Studies in Social Welfare. (1-3) Field work in community agencies and individual conferences with faculty. Must be taken on a passed/not passed basis. Supervised service experience relevant to specific aspects of social welfare work in nonprofit and governmental organizations. (F,SP) Staff

98. Group Study in Social Welfare. (1-3) Course may be repeated for credit. Must be taken on a passed/not passed basis. Group study on selected social welfare topics. Open to freshmen and sophomores. (F,SP) Staff

Upper Division Courses

107. Foundations, Philanthropy, and the Social Services: Grant Writing for Program Development. (3) Two hours of lecture/discussion and service learning per week. Course explores the role of philanthropy, foundations, and proposal development in American society. A grant writing exercise in a Bay Area community agency is required. (F,SP) Cornet Staff

110. Social Work as a Profession. (3) Two hours of lecture and one hour of discussion per week. Formerly 102. This course examines social work as a profession, the profession, the organizational context of professional practice, and the ethics of the profession. (F,SP) Staff

112. Social Welfare Policy. (3) Two hours of lecture and one hour of discussion per week. Formerly 100. Analysis of social welfare policies and programs including public assistance, social insurance, social services, and health and mental health. (F,SP) Staff

114. Practice in Social Work. (3) Two hours of lecture and one hour of laboratory/discussion per week. Formerly 103. An introduction to the basic skills of interpersonal helping and problem solving and to related theory and research. (F,SP) Staff

116. Current Topics in Social Welfare. (2) Course may be repeated for credit with consent of instructor. Two hours of lecture per week. Prerequisites: 102. Formerly 105. Course examines current issues and trends in the field of social welfare. (F,SP) Staff

C128. Perspectives on the Young Child in Society. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 110 (Social Welfare majors). Formerly C166C. This course provides a multidisciplinary approach to understanding the development needs of children alive in the context of the varied social institutions in which they are cared for and educated. Specific attention will be focused on how children’s experiences within and across families, schools, peer groups, ethnicity, race, language, family needs and preferences, and special needs. Students will examine how expectations for young children change over time and will become familiar with current and past policy debates about the education and social well-being of young children. Also listed as Education C116A and Psychology C1014. (F,SP) Berrick

C129. Children Through History: Social Practices and Social Welfare. (4) Three hours of lecture and one hour of discussion per week. Course brings together the methods of historical analysis and the problems faced by social welfare professionals to create a new and provocative examination of children and childhood in America. This course will include childbirth and infancy, children’s rights, learning, and the state of the superparent. A significant research paper is required. Also listed as History C129 and Undergraduate Interdisciplinary Studies C132. (F,SP) Staff

186. Domestic Violence. (2) Two hours of lecture per week. This course will investigate the phenomenon of domestic violence in the United States from historical, psychological, sociological, anthropological, legal, feminist, and cross-cultural perspectives. We will study the social construction of violence, relevant theories of causation, the merits of related services

B prefix=language course for business majors
C prefix=course satisfies R&C requirement
P prefix=course satisfies R&C requirement
R prefix=course satisfies R&C requirement
S prefix=course satisfies American Cultures requirement
*Professor of the Graduate School
Recipient of Distinguished Teaching Award

Social Welfare / 469

previously extracted text
and interventions, and the experiences of diverse pop-
ulations. (F,SP) Merrill

H195. Senior Honors Course. (1-3) Course may be
repeated for credit. Individual consultation. Pre-
requisites: 100. Preparation of an honors thesis. (F,SP) Staff

197. Field Studies in Social Welfare. (1-3) Field
work in community agencies and individual con-
ferences with faculty. Must be taken on a passed/not
passed basis. Supervised experience relevant to spe-
cific aspects of social welfare in off-campus organi-
zations. Regular individual meetings with faculty
sponsor and written reports required. (F,SP) Staff

198. Group Study for Advanced Undergraduates. (1-
3) Course may be repeated for credit. Lecture and
discussion. Must be taken on a passed/not passed
basis. Group study on selected social welfare topics. (F,SP) Staff

199. Supervised Independent Study and Research. (1-
3) Course may be repeated for credit. Tutorial con-
ference. Must be taken on a passed/not passed basis.
Enrollment is restricted by regulations specified in this
catalog. (F,SP) Staff

Graduate Courses

200. Human Behavior and the Social Environment. (2)
TENTATIVE PLACE OF LECTURE PER WEEK. The psychologi-
cal, interpersonal, and social development of the per-
son across the life cycle in the context of different
social environments. (F) Runyan, Stone, Cavanaugh

205. Psychosocial Problems and Psychopathol-
gy. (2) Two hours of lecture per week. Develop-
mental alterations and deviations which result in
dysfunctional behavior in the individual. Examines
problems and disorders of children and adults from
psychological and social perspectives. (F) Gambrell,
Organista, Taubman

210A. Stress and Coping in Adulthood. (2) Two
hours of lecture per week. Prerequisites: 200. Descrip-
tions, measurements, and major theories concerning
the etiology of stress and coping in the adult (25-60)
years. Organista

210B. Infants and Development. (2) Two hours of lecture per
week. Prerequisites: 200. Topics and issues in
infant development, including infant mental health,
parent-child relationships, behavior assessment, pre-
dictors of disturbance, and intervention with high risk
infants. (SP) Ivins

210C. Aging Processes. (2) Two hours of lecture per
week. Sociological, psychological, physiological,
and cultural factors relevant to understanding the com-
plexity of the aging process. Normative and mal-
developmental pathways for children and adoles-
cents. (F) Stone

210D. Infant Development. (2) Two hours of lecture/discussion per week.
The purpose of this course is to meet the needs of
students interested in the way social work incorpor-
ates a social change and social justice perspective.
The course is grounded in theoretical perspectives
of social change and social justice, but it is also con-
cerned with practical and professional matters such as
change-focused direct practice, community orga-
nizing, legislative action, and other activities designed
to give expression to the professor's social justice
commitments. (F,SP) Midgley

210E. Law and Social Welfare: Children and Fam-
ilies. (2) Two hours of lecture per week. Legal infor-
mation and policy discussion for social workers and
other human service providers in the child and fami-
ly welfare field. Staff

210F. Social Networks and Social Support. (2) Two
hours of lecture per week. Prerequisites: 200. Focus on
the “personal community”—those significant others
available to render assistance in times of physical or
emotional strain. How networks operate; their accom-
plishments and limitations; the role and skills of profes-
sionals in assessing and utilizing networks for clients.
Staff

C210H. Perspectives in Personality: Personality
Theory. (2) Two hours of seminar per week. Major
approaches to personality theory, including psychody-
namic, behavioral, psychometric, and humanistic
theory, as well as work in culture and personality, the
study of lives, and feminist psychology. Analysis of
relations between the life, work, and social-historical
context of Freud, Skinner, Rogers, Eysenck, Margaret
Mead, and others, with attention to the origins, course,
framework of social work's core values and fundamental practice responsibilities. These core values include social justice and client empowerment. A general understanding of these values and the responsibilities that exist to ameliorate this problem. This 10-week, full-time commitment to professional competence, and a multidisciplinary approach to understanding fundamental practice responsibilities. These core values and fundamental practice responsibilities include the human sexual response cycle; childhood and adolescent sexuality development; sexual problems, causes and treatment approaches (including systems approaches to working with couples); self-orientation and gender identity development; sexuality and living with a disability; sexual violence and consent; sexuality and HIV/AIDS, and the law and ethics related to professional sexual misconduct and boundary violations.

243. Direct Practice in Child and Family Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Focus on the development of interventions, are discussed and illustrated with case vignettes. (SP) Ayasse, Gamborino

244. Direct Practice in Mental Health Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Planning, implementing, and evaluating services for clients with major mental disorders or at risk of developing mental illness. Review of intervention models addressing the needs of clients for basic resources, social rehabilitation, and clinical treatment. (SP) Manolesou

245. Direct Practice in Health Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Examines the role of therapeutic intervention models used by social workers in health care; the interaction of health care policies and practices; interdisciplinary issues; and the ethical dimensions of practice. (SP) Rothman

246. Direct Practice in Aging Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241, 250M. Focus on the development of interventions, are discussed and illustrated with case vignettes. (SP) Scharbach

250A. Social Work with Groups. (2) Two hours of lecture per week. Prerequisites: 241. Theory and practice regarding the formation, sustenance, and termination of groups. Emphasis on the role of the social worker in facilitating interpersonal processes in groups. (F) Edwards

250B. Family Therapy. (2) Two hours of lecture per week. Prerequisites: 241. Theoretical frameworks and intervention skills for family work. (F) Cavanaugh

250C. Brief Therapy and Crisis Intervention. (2) Two hours of lecture per week. Prerequisites: 241. Examines the different models of brief therapy and brief psychotherapy from an historic and psychodynamic perspective. Provides assessment criteria for assignment to these forms of treatment. Students must possess a working knowledge of DSM-IV-TR nosology. (SP) Cavanaugh

250G. Psychodynamically Oriented Social Work Practice with Adults. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Course examines clinical skills for working with adult clients from a psychodynamic perspective. Key concepts and processes, such as the formation of a therapeutic alliance, resistance, transference, counter-transference, and the development of interventions, are discussed and illustrated with case vignettes. (SP) Ying

250J. Social Work with Latino Populations. (2) Two hours of lecture per week. Prerequisites: 241. Examines major social problems and mental health issues confronting Chicano and other Latino groups in the U.S. Emphasis on the assessment and treatment of psychosocial problems. (SP) Ayasse

250K. Social Work and Disability. (2) Two hours of lecture per week. Using a theoretical framework grounded in the values of self-determination, dignity, and respect, this course will address issues in the disabilities field including demographics, etiology, policy, and the development of disability resources network. Practice skills in communications, assessment, and micro- and macro-level intervention will be reviewed. Staff

250L. Human Sexuality. (2) Two hours of lecture per week. This course will provide a forum for the exploration of multiple issues related to human sexuality and the diversity of sexual experience, including: the human sexual response cycle; childhood and adolescent sexuality development; sexual problems, causes and treatment approaches (including systems approaches to working with couples); self-orientation and gender identity development; sexuality and living with a disability; sexual violence and consent; sexuality and HIV/AIDS, and the law and ethics related to professional sexual misconduct and boundary violations.

Methods teaching will include interactive lecture, small group discussions, video presentations, and guest speakers from throughout the Bay Area who specialize in a range of sexuality issues. (F) Staff

250M. Death and Dying. (2) Two hours of lecture/clinical practice per week. Prerequisites: 241. Focus on the development of interventions, are discussed and illustrated with case vignettes. (F) Ying

250NA. Public Child Welfare Services. (1) Two hours of lecture/seminar per week. Prerequisites: 241. Examines the range of therapeutic modalities used by social workers in public child welfare. Fall term examines continuum of services, common clinical case management themes, impact of chemical dependency, trauma, and sexual abuse on treatment planning and intervention models, and the practice of social work within the legal context of the dependency court. (F) Ralph

250NB. Public Child Welfare Services. (1) Two hours of lecture/seminar per week. Prerequisites: 241; 250M. This 10-week, full-time course is designed for students preparing for careers in public child welfare. Spring term addresses the range of documentation required for legal purposes, practice issues for social workers in the court setting, and skills required in presenting testimony. (SP) Ralph

250P. Child Psychopathology: Issues in Assessment and Treatment. (2) Two hours of seminar per week. Prerequisites: 205, 241. Course surveys assessment and treatment approaches to various psychosocial problems in childhood and adolescence. Specific emphasis is placed on internalizing and externalizing disorders. Course is taught using a developmental framework. Students must possess a working knowledge of DSM-IV-TR nosology. (SP) Cavanaugh

250Q. Strengthening Intergenerational/Intercultural Ties in Immigrant Families. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Focus on the development of interventions, are discussed and illustrated with case vignettes. (SP) Ying

250T. Social Work Practice in School Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Focus on the development of interventions, are discussed and illustrated with case vignettes. (F) Ying

250U. Substance Abuse Treatment. (2) Two hours of lecture per week. Prerequisites: 241. Course provides an introductory overview of various theories and methodologies currently used in the diagnosis and treatment of substance abuse disorders. Though the bulk of the course will be devoted to the disease model and corresponding interventions, some attention will be given to prevention and epidemiology. Emphasis will be placed on the unique role of social work in the prevention/intervention of substance abuse problems. (SP) Ayasse

250X. Domestic Violence: Assessment and Intervention. (2) Two hours of lecture per week. This practice-oriented course will teach graduate level social work students how to engage, assess, and intervene effectively with individuals, families, and children impacted by intimate partner violence. We will review: the scope, impact, and causes of the problem; relevant screening and assessment clinical intervention paradigms and techniques for victims, perpetrators, and children; and future directions. Significant time will be devoted to examining this problem from a systems-as-constructed and identified perspective, including identifying emotional coping strategies for the developing clinician. (F) Mernli

251. Community Practice. (2) Two hours of seminar per week. This course provides an overview of the theories, knowledge, and skills required for community organization, needs assessment, and program planning and development. Course focuses on developing community-based interventions in a diverse society. (SP) Chow

252. Management Practice. (2) Two hours of lecture per week. Basic theories, areas of knowledge, and practice skills for the administration of human services. Topics include program development, implementation, inter-organizational collaboration, and staff supervision. (F) Austin

254. Policy Practice. (2) Two hours of seminar per week. Course introduces the practice of social welfare policy making. Focusing on the California State Legislature, students in the first half of the course are taught policy analysis skills, lobbying, testifying, working with legislators, legal and ethical considerations, and the media, and forecasting a policy agenda. In the second half of the course, students examine the internal environment of agency change, address the use of management information systems and outcomes measurement as strategies for information collection, and learn skills for effectively using information to improve agency decision making. (F) Bierck

255. Community Organizing. (2) Two hours of lecture/discussion per week. Introduction to the theory and practice of community practice. (SP) Ayasse

257. Financial Management. (2) Two hours of lecture/discussion per week. Formerly 298. This course provides both theoretical knowledge and practical skills for managing scarce resources in social service organizations. Students will learn tools and techniques for effective planning and budgeting as well as how to design information systems to control, evaluate, and revise plans. Accounting principles and systems will be addressed from a management perspective with an emphasis on dealing with the unique management information needs of different organizations. The use and development of internal and external financial statements will be covered. Students will learn the tools of financial statement analysis, interpretation, and presentation. The course is designed to develop the core financial management skills needed by senior and middle managers and small social service organizations. (SP) Courtney
270. Access to Human Services Among Low Income and Minority Populations. (2) Two hours of seminar per week. Course examines how services can be more appropriate for small, intermediate, and large poor. Problems of utilization will be considered with respect to: cultural beliefs and expectations; self-help and indigenous care; and the design of service systems, health care, mental health, and services for children and families. Snowden

274. Immigrants and Refugees in the U.S. (2) Two hours of seminar per week. Overview of immigration policy in the U.S. from an international and historical perspective. Theories of migration, transnationalism, and adaptation will be addressed, along with skills required for working with refugees and immigrants facing difficulties. Addresses the impact on policy on who comes to the U.S. and the circumstances newcomers and families face here.

275. Diversity-Sensitive and Competent Social Work. (2) Two hours of lecture/discussion per week. Course prepares students to understand, provide, and evaluate diversity-sensitive social work services. The course: (1) builds sensitivity to human diversity by addressing multiple status dimensions (race, ethnicity, gender, sexual orientation, social class, etc.); (2) involves students in the process of diversity sensitization through experience self-reflection and interactive exercises; (3) promotes diversity competent practice skills. (SP) Staff

279. Seminar in the History and Philosophy of Social Welfare. (2) Two hours of seminar per week. Primarily for doctoral students. A review of efforts to conceptualize the field of social welfare and to analyze its tendencies. (SP) Giles

280. Introduction to Social Welfare Research. (2) One hour of lecture and one hour of discussion per week. Introduction to the theory and practice of research in social welfare. (SP) Staff

282A-282B. Seminar in Social Welfare Research. (2,2) Two hours of seminar per week. Prerequisites: 260. Problem formulation, design, and implementation. (F) Staff

287. Research Resources and Processes. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This seminar aims to prepare doctoral students for teaching in social welfare. The course is divided into two parts. The first part examines education from the perspective of the student and the teacher, and their interface. It reviews philosophies and theories of adult education, and underscores the importance of critical reflection, both on the part of the teacher and the student. The second part of the course is concerned with the practice of teaching in social welfare, and addresses specific skills, such as syllabus design, instructional methods, coverage of diversity content, student assignment and evaluation, use of technology, advising, mentoring, and working with GSIs and students with special needs. Finally, students develop the beginnings of a teaching portfolio. Using an interactive format, students are encouraged to share their own learning and teaching experiences, and to progress in their development as teachers. (SP) Ying

300. Teaching in Social Welfare. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This seminar aims to prepare doctoral students for teaching in social welfare. The course is divided into two parts. The first part examines education from the perspective of the student and the teacher, and their interface. It reviews philosophies and theories of adult education, and underscores the importance of critical reflection, both on the part of the teacher and the student. The second part of the course is concerned with the practice of teaching in social welfare, and addresses specific skills, such as syllabus design, instructional methods, coverage of diversity content, student assignment and evaluation, use of technology, advising, mentoring, and working with GSIs and students with special needs. Finally, students develop the beginnings of a teaching portfolio. Using an interactive format, students are encouraged to share their own learning and teaching experiences, and to progress in their development as teachers. (SP) Ying

301. Training in Teaching. (1-6) Course may be repeated for credit. Supervised teaching assistance. Must be taken on a satisfactory/unsatisfactory basis. One unit will be awarded for each four hours per week of student work. (F,SP) Staff

400. Introductory Practicum. (1) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Introduction to the range of professional roles and services in social welfare through university-based, community-based, and professional panels. Taken in the first semester of the MSW program. (F) Staff

401. Field Practicum. (1-10) Course may be repeated for credit. One unit of credit awarded for each four hours per week of practicum work. Must be taken on a satisfactory/unsatisfactory basis. Supervised field work in social agencies and university-based group meetings. (F,SP) Staff

403. Training in Research. (1-6) Course may be repeated for credit. Supervised research assistance. Must be taken on a satisfactory/unsatisfactory basis. One unit will be awarded for each four hours per week of student work. (F,SP) Staff

Sociology
(College of Letters and Science)
Department Office: 410 Barrows Hall, (510) 642-4766
Chair: Michael Burawoy, Ph.D.

Professors
Victoria E. Bonnell, Ph.D. Harvard University. Historical, labor, Russian society
Michael Burawoy, Ph.D. University of Chicago. Labor, comparative, political economy
Peter Evans, Ph.D. Harvard University. Comparative development, Latin America
Claude S. Fischer, Ph.D. Harvard University. Urban networks, history, technology
Neil Fligstein, Ph.D. University of Wisconsin. Social stratification and class, methodology and statistics, corporate organizations
Leo A. Goodman (The Class of 1938 Professor), Ph.D. D.D.S. (Hon) Princeton University. Statistical/mathematical methods of social sciences
Heather A. Haveman, Ph.D. University of California, Berkeley. Organizational theory, economic sociology, historical sociology
Michael Vassolo (Chair, Demography), Ph.D. Indiana University. Demography, methods, occupations, stratification
Jerome Karabel, Ph.D. Harvard University. Education, stratification, intellectuals, political economy
John Lie (Dean, International and Area Studies), Ph.D. Harvard University. Social theory, political economy
Kristin Luker, Ph.D. Yale University. Gender, reproduction, medicine
John Levi Martin, Ph.D. University of California, Berkeley. Sociology of knowledge, mathematical sociology, political sociology
Trudy D. Peterson, Ph.D. University of Wisconsin. Career systems, payment systems, organizational behavior
Manuel Sánchez-Jankowski, Ph.D. Massachusetts Institute of Technology. Deviance, political, urban, youth
Ann Swidler, Ph.D. University of California, Berkeley. Culture, religion, theory, organizations
Barrie Thorne, Ph.D. Brandeis University. Gender, theory, childhood
Kim Voss, Ph.D. Stanford University. Labor, movements, historical, methods
Loa C. Wacquant, Ph.D. University of Chicago. Racial domination, the penal state, comparative urban marginality, incarceration, social theory
Margaret Weir, Ph.D. University of Chicago. Political sociology
Robert N. Bellah (The Elliott Chair Emeritus), Ph.D. Religion, sociology, anthropology
Kenneth E. Bock (Emeritus), Ph.D. Economics, sociology, culture, political sociology
Marcel Castells (Emeritus), LL.B. Ph.D. Sociology, political economy, technology
Nancy J. Chodorow (Emeritus), Ph.D. Philosophy, sociology
Robert E. Cole (Emeritus), Ph.D. Education, philosophy
Troy Duster (The Chancellor's Professor Emeritus), Ph.D. Psychology, history, technology
Charles T. Glick (Emeritus), Ph.D. Economics, sociology
Artie R. Hochschild (Emerita), Ph.D. Sociology, women's studies
David Matza (Emeritus), Ph.D. Sociology, law, psychology
H. F. Schumann (Emeritus), Ph.D. Economics, sociology
Philippa Strachey, Ph.D. H. C. J. Voss, Ph.D. Dr. jur. h.c.
Neil J. Smelser (Emeritus), Ph.D. Sociology

Associate Professors
Lauren Enriquez, Ph.D. University of California at Santa Cruz. Labor, rural sociology, migration, Latin America
Thomas Gold, Ph.D. Harvard University. Urbanization/development, China
Jennifer Johnson-Hanks, Ph.D. Northwestern University. Demography, family
Samuel Lucas, Ph.D. University of Wisconsin. Social stratification, education, research methods
Raka Ray, Ph.D. University of Wisconsin. Political sociology, social movements, gender, research methods
Sandra Smith, Ph.D. University of Chicago. Race and ethnicity, social capital and social networks, stratification

Assistant Professors
Irene Bloemaert, Ph.D. Harvard University. Immigration, political sociology, race and ethnicity
Manuel Fournier-Gourinchas, Ph.D. Harvard University. Economic sociology, culture, political sociology
Cybele Fox, Ph.D. Harvard University. Race and ethnicity, migration and immigration, political sociology
Dylan R. Price (Emeritus), Ph.D. University of California, Los Angeles. Comparative historical sociology, social theory
Erik Tugol, Ph.D. University of California, Los Angeles. Political sociology, social movements, religion
Stephen Vaisey, Ph.D. University of North Carolina, Chapel Hill. Cultural sociology, statistics, sociology of education
Robb Willer, Ph.D. University of California, Berkeley. Social psychology, collective action, gender/masculinity

Affiliated Professors
Lauren B. Edelman, Ph.D. Stanford University. Law and society, sociology, social organization, work and labor markets
W. Russell Ellis Jr., Ph.D. University of California at Los Angeles. Social factors in design (Architecture)
James R. Lincoln, Ph.D. University of Wisconsin. Organization theory, Japanese management, organizational networks

Organization theory, social movements, political sociology
The Major
Students intending to major in sociology are advised to prepare themselves by taking background work in such areas as history, philosophy, cultural anthropology, psychology, economics, and political science.

Note: Requirements for completing the sociology major are currently under review. For now, requirements for declaring the sociology major will remain the same. Please see the department’s undergraduate web site for updates at sociology.berkeley.edu, on line “Undergraduate Program.”

Prerequisite Courses for the Major. Sociology 1, Sociology 5, as well as a course in either statistics or logic. Students who have received credit for more than two upper division sociology courses before taking an introductory sociology course must substitute another core course for Sociology 1. Students who applied as soon as they have enrolled in their last prerequisite at least one sociology course must be completed at the time of declaration.

Students are required to have a 2.0 GPA both cumulative and in the major to be eligible to declare the major.

Upper Division. A student must take the following courses:

(2) Three courses from the following core list: 110, 111, 112, 113, 115, 116, 125 (or 125AC), 130, 131A (or 131AC), 131B, 133, 140, 150, 160, 170, (or 170AC), 171, 172.
(3) Three additional courses which must be upper division sociology courses numbered 101C-196, or graduate sociology courses (subject to instructor approval). Courses taken from the core list in excess of the three required, or additional upper division seminar courses, will count as electives, as will non-core courses.
(4) One sociology seminar: 90, 106, 107B, 190, 191B, 280 or 290.

Note: Sociology 5, 101A, and 101B must be completed with at least a C-grade.

Honors Program. Majors who enter their senior year with a 3.3 GPA overall and a 3.5 GPA in the major may apply to the honors program, after conferring with a major adviser. Students will be required to submit a thesis proposal as part of their application and are encouraged to take advanced methods courses such as Sociology 105, 106, or 107A-107B during their junior year in preparation for conducting research for the honors thesis. Students earn honors by maintaining the minimum GPA for honors and by successfully completing Sociology H190A-190B, Senior Honors Thesis and Seminar.

Students who plan to go on to graduate work in sociology or other related disciplines and professions or who plan to participate in the senior honors seminar are strongly urged to take Sociology 105, 106, or 107A-107B.

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The Graduate Program
Information about the graduate program and admissions may be obtained from the departmental graduate office, 422 Barrows Hall, (510) 642-1657. Applications are accepted for the fall semester only; the deadline is December 15.

Courses
For more detailed information about the courses that follow, course descriptions are available in the departmental office, 410 Barrows Hall, several weeks before the beginning of each semester.

Lower Division Courses

1. Introduction to Sociology. (4) Not open to students who have taken 3, 3A, or 3AC. Two hours of lecture and two hours of discussion per week. Introduces students to the major theoretical perspectives and concepts of the discipline. The course is required for the major; 1 or any year of upper division sociology classes; students not considering a sociology major are directed to any version of 3.

3AC. Principles of Sociology. (4) Students will not receive credit for 3 or 3AC after taking 1. Deficiency in 3 or 3A may be removed by completing 3AC. Credit for 3AC does not count toward the major. Comparing the experience of three out of five ethnic groups (e.g., African Americans, Asian Americans, Chicano/Latino, European Americans, and Native Americans), this course examines the experiences of people entered American society and built communities and transformed their cultures in the process. Students will be introduced to the sociological perspective, characteristic methods of research, and such key concepts as culture, community, class, race, social change, and social movements. This course satisfies the American Cultures requirement. (F,SP)

5. Evaluation of Evidence. (4) Three hours of lecture and two hours of discussion per week. This course is methodology in assessing data relating to social life. Topics to be covered include: posing a sociological problem, gaining access to data, measuring, establishing correlation and causal connections among data, and relating data to theoretical context.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic in the context of a small group with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

39. Freshman/Sophomore Seminar. (2) Course may be repeated for credit as topic varies. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Admission by instructor. Sophomore seminars are small interactive courses offered by faculty members in departments across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores, F,SP.

90. Directed Group Study. (1-4) Course may be repeated for credit. One to four hours of directed group study per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Group study of selected topics which vary over time. (F,SP)

Upper Division Courses

100. In the Sociology Workshop. (1) One hour of tutorial per term. Must be taken on a passed/not passed basis. Prerequisites: Declared sociology major or consent of instructor. In this seminar students will become familiar with faculty and their various research interests. It consists of a reading of faculty members’ ongoing work and allows students to address questions within and about the discipline. (SP)

101A. Sociological Theory. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: 1, 3 or 3AC, or consent of instructor. History of social thought as a source of present-day problems and hypotheses.

101B. Sociological Theory. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: 101A. History of social thought as a source of present-day problems and hypotheses.

101C. Contemporary Sociological Theory. (4) Three hours of lecture per week. Prerequisites: 101A-101B or consent of instructor. A systematic study of the work of selected social theorists of the post-WWII era. This course will stress the diversity of orientations in the field and will follow a comparative approach to the study of theory. The choice of theorists to be covered will vary according to the instructor.

102. Advanced Study in Social Theory. Three hours of lecture per week. Prerequisites: A course in social theory or consent of instructor. Course content will vary depending on the instructor and be designed to study in subfields of sociological theory. The courses are arranged to cover one general background in social theory. Consultant instructor as to whether your background is appropriate.

105. Introduction to Sociological Methods. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: 5 or consent of instructor. Problems of research design, measurement, and data collection, processing, and analysis will be considered. Attention will be given to both qualitative and quantitative studies. (F)

106. Intermediate Sociological Methods. (4) Two hours of seminar per week and individual conferences. Prerequisites: 105 or consent of instructor. This course will cover more technical issues in quantitative research design. The methods introduced in this course in accordance with the discretion of instructor, a practicum in data collection and/or analysis. Recommended for students interested in graduate work in sociology or research careers. (SP) Goodman

107A-107B. Field Research: Participant Observation. (4) Three hours of lecture per week. Credit and grade to be awarded on completion of sequence. This course gives students both substantive background and practical training in the participant-observer method. The first two weeks of classroom instruction will be based on an introduction to the method. In the second semester students will put the method into practice as they are sent to the field to gather data for the Center for Urban and Regional Geography’s Barrows project. All fieldwork students will participate in a bi-weekly seminar and work under the guidance of the professor to address issues that arise in the field. Sanchez-Jankowski

110. Organizations and Institutions. (4) Three hours of lecture per week. Prerequisites: 1 or 3AC, or consent of instructor. Administrative organizations and voluntary associations; major social institutions in industry, government, religion, and education.

111. Sociology of the Family. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course gives students both substantive back-

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
course, we trace the history of the American family from the 19th-century farm—where work, medical care, and entertainment went on—to the smaller, more diverse, and subjectively defined family of the 21st century. We also explore ways in which the family acts as a “shock absorber” of many trends including immigration, the increasing social class divide, and especially the growing domination of the marketplace. Finally, we also explore the diversity of family forms associated with social class, ethnicity, and sexual orientation. (F,SP)

C112. Sociology of Religion. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 1, 3 or 3AC, or consent of instructor. The course will locate the place of religious consciousness in human action and then survey comparatively and historically the role that religion has played in human society. We will explore the theory of the religious experience, religious symbolism, and the basis of religious community. Also listed as Religious Studies C112. (F,SP)

113. Sociology of Education. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 1, 3 or 3AC, or consent of instructor. The role of formal education in modern societies. Educational systems in relation to the religious, cultural, economic, and political forces shaping their character. (F,SP)

114. Sociology of Law. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1, 3 or 3AC, or consent of instructor. Selected legal rules, principles, and institutions treated from a sociological perspective. Influence of culture and social organization on law; role of law in social change; social, economic, institutional aspects of the administration of justice; social knowledge and the law. (F,SP)

115. Deviance and Social Control. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 1, 3 or 3AC, consent of instructor. A consideration of forms, causes, and controls of deviant behavior. (F,SP)

116. Sociology of Work. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 1, 3 or 3AC, consent or instructor. The labor force; social control within and of occupations and professions (professionalization, professional associations vs. labor unions, codes of ethics, legal controls); social structure of the workplace, work experience of the participants, relation of both to community and society. (F,SP)

118. Selected Topics in Sociology of Family and the Life Cycle. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 1, 3, 3AC, or consent of instructor. The focus of the course will vary depending on the instructor in charge. Possibilities include: the family during particular stages of the life course, childhood, and the sociology of child care. (F,SP)

119. Society and Information Technology. (4) Three hours of lecture per week. Prerequisites: 1, 3, 3AC, or consent of instructor. This course is aimed at undergraduate students of all backgrounds. It studies the interaction between society and contemporary information technologies in a comparative and multicultural perspective. Using information technology as an entry point, the course provides a systematic understanding of the interplay between society and social change in our time. Some topics covered include history of information technology since the 1970s, the new global economy, development and inequality, the information economy, civic democracy, electronic citizenship, gender relations in the information society, and the transformation of work and employment.

121. Innovation and Entrepreneurship: Social and Cultural Context. (4) Three hours of lecture per week. Prerequisites: 1, 3, or 3AC, or consent of instructor. Emphasis on the social and cultural context that enables or hinders the innovation process in business. The course starts by reviewing how companies can create and foster innovative cultures and organize for innovation, and reviews differences between countries in innovativeness. It continues by examining the factors which influence whether innovations are or are not adopted. It addresses some social and ethical issues of innovation, examines the social role and context of entrepreneurs, and closes with some case studies.

122. Comparative Perspectives on U.S. and European Societies. (4) Students will receive no credit for 122 and taking either 122A or 122AC. Three hours of lecture per week. Prerequisites: 1, 3, 3AC, or consent of instructor. This course explores differences between modern societies through systematic comparisons of several of the major issues of social and political change; social aspects of the administration of justice; social and political forces shaping their character. It deals with the dynamics of social, political, and economic processes. The approach taken will be broadly historical and multicultural and include readings on the social construction of nature, early industrialization and natural resources, race, ethnicity, and social movements in the United States, and the environmental impacts of late capitalism.

128A. Environmental Justice: Race, Class, Equity, and the Environment. (4) Two hours of lecture and one hour of discussion per week. Overview of the field of environmental justice, analyzing the implications of race, class, labor, and equity on environmental degradation and regulation. Environmental justice movements and struggles within poor communities and communities of color in the U.S., including African Americans, Latins, and Native American Indians. Frameworks and methods for analyzing race, class, and labor. Cases of environmental injustice, community, and government responses, and future strategies for achieving social and environmental justice. Also listed as Environ Sci, Policy, and Management 163AC. This course satisfies the American Cultures requirement. (F) O’Rourke

130. Social Stratification. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Recent trends in occupational stratification; social classes in local communities and the nation as related to interest organizations.

131A. Race and Ethnic Relations: The United States Experience. (4) Deficiency in 131A cannot be removed by completing 131A. No credit for 131A after 131AC. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Course focuses on race and ethnic relations in the United States. Examination of historical experiences, contemporary circumstances, and future prospects of racial and ethnic populations with particular attention to trends in relations between the dominant society and the African American, Native American, Latino, and Asian American subcultures. Political and social consequences of racial and ethnic stratification are explored.

131AC. Race and Ethnic Relations: The United States Experience. (4) Deficiency in 131AC cannot be removed by completing 131A. No credit for 131A after 131AC. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Course focuses on race and ethnic relations in the United States. Examination of historical experiences, contemporary circumstances, and future prospects of racial and ethnic populations with particular attention to trends in relations between the dominant society and the African American, Native American, Latino, and Asian American subcultures. Political and social consequences of racial and ethnic stratification are explored. This course satisfies the American Cultures requirement. (F,SP) Barlow

131B. Race and Ethnic Relations: International Comparisons. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. A broad survey of race and ethnic relations in a wide variety of nations and periods, with special attention to comparisons with the present and past patterns in the United States. Comparisons across industrial, across cultural, across national, across institutional, social psychological, and demographic processes.

132. Race and Ethnic Relations: Selected Topics. (4) Course may be repeated for credit as topic varies. No credit for 132 after taking 132AC. Deficiency in 132A may be removed by completing 132AC. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC.
133. Sociology of Gender. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Historical and contemporary trends in theories of gender and gender relations. Exploration of key institutions such as family, state, and workplace through which students can understand the social, economic, and cultural factors that create and shape what it means to be a man or a woman. Consideration of feminist movements, in a global context, and of relationships of gender to class, sexuality, age, race/ethnicity, and religion. Three hours of lecture per week. This course may be repeated for credit as topics vary. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. The focus of this course will vary depending on the instructor in charge. Examples of possible topics: gender and the state; gender and work; the gender dynamics of childhoods; gender assignment and identity; women's movements; changing constructions of masculinity in the U.S.; Marxist and post-Marxist perspectives. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course examines how sexual identities, communities, desires, and practices are socially, historically, and culturally constructed. We will look at sexuality as an aspect of culture, as well as how a wide range of people—including lesbians, bisexuals, gay men, transgendered, and self-described queers—contest the power that operates through dominant models of sexuality. Looking at empirical studies and theoretical texts, we will trace the paradigm shift from late 19th-century sexology to early 20th-century psychoanalysis, through a variety of theoretical lenses. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course investigates the relations of psyche, culture, and society, drawing on writings of psychoanalysts and social and cultural theorists who use psychoanalytic approaches. Major topics include: how inner life helps to shape social experience and cultural meaning, as well as the reverse; cultural personality and identity; psychoanalytic methodologies in the social sciences; and psychoanalytic social critique and visions of subjectivity. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. The course delves into discourse about community across multiple communities and online social networks, old questions taking on renewed significance. Using a variety of online social media simultaneously, and drawing upon online and face-to-face interactions, this course delves into discourse about community across disciplines. This course will enable students to establish both theoretical and experiential foundations for making decisions and judgments regarding the relationships between mediated communication and human community. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Study of major changes in modern societies: the sources of these changes; the processes through which they spread; their meaning for individual and group life; and the meaning of consumption patterns. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will seek to explain the formation of modern United States society by inquiring into the processes of social change that have brought us to the present, as well as created possibilities for the future. The course will focus on social, economic, and ethnic—and movements against racism and nationalism and for multiculturalism—are central dimensions of social change in the United States. The course will examine changing processes of race and gender that affect and are affected by different racial and ethnic groups in the United States. This course satisfies the American Cultures requirement. An introduction to institutional and political settings of contemporary theory and political practice. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. An introduction to the political institutions, theories and practices of American politics, American political culture, and the American political system. Three hours of lecture per week. Prerequisites: 1, 3, 3AC, or consent of instructor. An interdisciplinary course that addresses the political, economic, social, and cultural dynamics associated with the formation and play of public opinion, and the formation of social movements and political action. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Study of the relations among the economy, politics, and society, and how these three areas of social life are affected by different racial and ethnic groups. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will study the relations linking persons, organizations, interest groups, states, etc., analyze the structure of these relations, and review how such structures constrain or enable different types of social action. A “social network” can be an association of people or groups of people. It is usually for some kind of exchange, with the network serving as a forum or medium. It can be personal or impersonal. This course will receive no credit for 156 after taking 153. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will seek to explain the formation of modern United States society by inquiring into the processes of social change that have brought us to the present, as well as created possibilities for the future. The course will focus on social, economic, and ethnic—and movements against racism and nationalism and for multiculturalism—are central dimensions of social change in the United States. The course will examine changing processes of race and gender that affect and are affected by different racial and ethnic groups in the United States. This course satisfies the American Cultures requirement. An introduction to institutional and political settings of contemporary theory and political practice. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. 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A course on the social and political consequences of economic change, focusing on the poor countries of Asia, Africa, and Latin America. Offers both a basic descriptive understanding of processes of change in these countries and an introduction to major theoretical perspectives on development and globalization. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course explores the ways that contemporary American society is different than other societies and different than American society in earlier periods. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. A course on the social and political consequences of economic change, focusing on the poor countries of Asia, Africa, and Latin America. Offers both a basic descriptive understanding of processes of change in these countries and an introduction to major theoretical perspectives on development and globalization. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. A course on the social and political consequences of economic change, focusing on the poor countries of Asia, Africa, and Latin America. Offers both a basic descriptive understanding of processes of change in these countries and an introduction to major theoretical perspectives on development and globalization.
methods to understand the dramatic social conse-
quen-
tes of the economic reforms underway in China since 1978, while examining the practical problems of how the new economic measures represent these developmental shifts to home and abroad. Sociological topics include: change in Communist Party/state-society relations; decollectivization of the rural economy; the rural-urban phenomenon in the economic-}
onomy; and realization of the urban residence control system. Journalistic problems include how do atti-
tudes toward information, censorship, and secrecy affect professional news-gathering, and influences on news agendas. Also listed as Journalism C183. Gold, Wakeman

187. Social Change in Central America. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will intro-
duce students to the origins and nature of social change in contemporary Central America. A socio-
historical approach will be used to describe the region’s development, while laying the groundwork for understanding the recent changes in recent decades. While focusing particularly on Central America, the course will also provide the theoretical and analytical tools required to comprehend social change elsewhere in the Third World.

189. Selected Topics in Area Studies. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will intro-
duce students to the origins and nature of social change in contemporary Central America. A socio-
historical approach will be used to describe the region’s development, while laying the groundwork for understanding the recent changes in recent decades. While focusing particularly on Central America, the course will also provide the theoretical and analytical tools required to comprehend social change elsewhere in the Third World.

190. Seminar on Advanced Topics. (4) Course may be repeated for credit as topic varies. Two hours of seminar per week and individual conferences. Prereq-
isites: 1 or 3 or 3AC or consent of instructor. This course will introduce students to the origins and nature of social change in contemporary Central America. A socio-
historical approach will be used to describe the region’s development, while laying the groundwork for understanding the recent changes in recent decades. While focusing particularly on Central America, the course will also provide the theoretical and analytical tools required to comprehend social change elsewhere in the Third World.

191. The World of Sociological Research. (1) Two hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This seminar is for students who are inter-
tested in writing a paper. It is designed to improve writing skills, with a focus on empirical sociological research. Students will be required to conduct, write, and present an original research project. The seminar will also have a set of substantive readings, which will help students with specific substantive interests focus their work. The readings will vary by year and instructor, and may cover topics such as immigration, ethnicity, and poverty.

195. Social Psychology Laboratory Research. (1-4) Course may be repeated for credit. One to four hours of independent study per week. Prerequisites: Con-
sent of instructor. In this course, students apply to empirical sociological research methods to understand the dramatic conse-
quences of the economic reforms underway in China since 1978, while examining the practical problems of how the new economic measures represent these developmental shifts to home and abroad. Sociological topics include: change in Communist Party/state-society relations; decollectivization of the rural economy; the rural-urban phenomenon in the economic-}
onomy; and realization of the urban residence control system. Journalistic problems include how do atti-
tudes toward information, censorship, and secrecy affect professional news-gathering, and influences on news agendas. Also listed as Journalism C183. Gold, Wakeman

200. Proseminar. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. This proseminar is required of all first-year graduate students and is supervised by a regular faculty mem-
er. The seminar will familiarize students with faculty and their various research interests and of opportuni-
ties available for funding via research and teaching assistantships. It consists of presentations by faculty on their past, present and future research and by rep-
resentatives of Organized Research Units on their mission, programs of research, and opportunities for assistantships.

201A. Classical Social Theory. (3) Students will receive no credit for 201A after taking 201. Two hours of lecture per week. Prerequisites: Consent of instruc-
tor. Social theory began as an attempt to come to grips with the massive transformations in Europe beginning around 1500. Modernity was understood in three ways. It concerned the development of a cap-
italist economy based on the use of science to develop new technology, the emergence of states with bureau-

271A-271C. Methods of Sociological Research. (4;3;3) 271A: Four hours of lecture per week. 271B-271C: Two hours of lecture and two hours of laboratory per week. Prerequisites: Consent of instructor. A three-semester sequence course introducing logical and analytic techniques commonly employed in social science research. The methodological problems encountered here will be presented in historical and comparative perspective. The first semester concentrates on techniques for gathering evidence; the second and third focus on an understanding and intermediate numerical techniques for analyzing evidence.

C271D. Quantitative/Statistical Research Methods in Social Sciences. (3) Two hours of lecture per week. Prerequisites: Consent of instructor. Selected topics in quantitative/statistical methods of research in the social sciences and particularly in sociology. Possible topics include: analysis of qualitative/categorical data; loglinear models and latent-structure analysis; the analysis of cross-classified data having ordered and unordered categories; measure, models, and graphical displays in the analysis of cross-classified data; correspondence analysis, association analysis, and related methods of data analysis. Also listed as Statistics C281.

272. Studies in Sociological Research Methods. Course may be repeated for credit. 

272A. Logic of Inquiry. (3)
272C. Comparative and Historical Research. (3)
272D. Quantitative Statistical Research. (3)
272E. Participant Observation. (3)
272F. Interview Methods. (3)

273. Advanced Seminars in Research Methods. Course may be repeated for credit. Two hours of seminar per week. Seminar in advanced sociological research methods.

273D. Quantitative/Statistical Research. (3)
273E. Participant Observation. (3)
273F. Interview Methods. (3)

280. Advanced Study in Substantive Sociological Fields. Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor. Courses under this number involve pursuing graduate study in subfields of sociological research methods.

280A. Logic and Deviance. (3)
280AA. Sociology of Poverty. (3) This course introduces students to the sociology of poverty by understanding its causes and conditions. Poverty is part of the social stratification system as well as a condition with properties that characterize the individual living with extreme material scarcity. Thus, it involves both the social and the physical world. The course will engage a broad literature on poverty that incorporates research from sociology, economics, and anthropology. We may also consider structure, culture, and agency in creating and maintaining individuals and groups in the condition of poverty. Sanchez-Jankowski

280B. Race and Ethnic Relations. (3)
280C. Political Sociology. (3)
280D. Organizations. (3)
280E. Sociology of Work. (3)
280F. Family and Life Cycle. (3)
280G. Social Stratification and Class Analysis. (3)
280H. Development and Modernization. (3)
280L. Religion. (3)
280J. Urban Sociology. (3)

280K. Social Psychology. (3)
280L. Gender. (3)
280M. Culture. (3)
280N. Education. (3)
280P. Area Studies. (3)
280Q. Economy and Society. (3)
280R. Professions. (3)
280S. Social Movements. (3)
280T. Rural Sociology. (3)

280W. Sexuality. (3) In this course we address a wide range of social theories and sociological investigations of sexuality as it is conceptualized and experienced in social contexts. Theoretical approaches to sexuality may include psychoanalytic, feminist, Marxist, symbolic-interactionist, and discursive/post-structural approaches to understanding how sexual categories vary over time and across cultures, how people identify with or against them, and how social power works through time.

280X. Immigration and Incorporation. (3) This seminar examines the dynamics of migration, integration, and citizenship, both from the perspective of the receiving society and from the lived experiences of migrants themselves. The seminar focuses on processes of incorporation—economic, social, cultural, and political—but also look at paradigms that challenge an integrationist reading of migration, in particular transnationalism and models of postnational citizenship.

280Y. Sociology of Globalization. (3) Two hours of seminar per week. Sociology now analyzes social organization that transcends national boundaries, not just as linking national societies or as influencing national societies, but as a phenomenon in its own right. This course brings together a selection of literature that looks at transnational social organizations and the distinctive dynamics of global political economy and culture and offers a sociological perspective on what lies behind the vague and confusing label of “globalization.”

280Z. Sociology of Religion. (3) This seminar is a workshop on professional writing for sociologists. We will focus on the various aspects of writing sociological research. The seminar begins with preparing a writing seminar for a dissertation chapter, dissertation prospectus or even a draft interview schedule. Through a process of peer review, we will work on improving each participant’s written work, and to stay abreast of the diverse work being done in the field of the seminar’s topic.

281. Independent Study for Graduate Students in Sociology. (1-12) Course may be repeated for credit. Independent study, variable hours. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. By arrangement with faculty. (F,SP)

286. Directed Dissertation Research. (1-12) Course may be repeated for credit. Independent study, hours vary. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. By arrangement with faculty. Open to qualified students advanced to candidacy. (F,SP)

288. Directed Group Studies for Graduates. (1-9) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Group studies of selected topics which vary from year to year.

289. Individual Study and Research. (1-9) Course may be repeated for credit. Individual conferences. Prerequisites: Consent of instructor. For students engaged in individual research and study. May not be substituted for available graduate lecture courses or 290. (F,SP)

301. Individual Study for Master’s Students. (1-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the adviser. Units may not be used to meet either unit or residency requirements for the master’s degree. (F,SP)

302. Individual Study for Doctoral Students. (1-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residency requirements for the doctoral degree. (F,SP)

Professional Courses

303. Professional Training: Teachers. (3-6) Course may be repeated for credit. Units may not be used to meet unit or residency requirements for either the master’s or doctoral degree. Must be taken on a satisfactory/unsatisfactory basis.

401. Professional Training: Research. (3-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Units may not be used to meet unit or residency requirements for either the master’s or doctoral degree.
Sociology and Demography

(College of Letters and Science)

Group Office: 2322 Piedmont Avenue, (510) 642-9800
www.demog.berkeley.edu/acadprograms/socdemog.html
Chair: Michael Hout, Ph.D.

Faculty

Irene Bloom. Ph.D. (Sociology)
Neil Fligstein. Ph.D. (Sociology)
Michael Hout. Ph.D. (Sociology)
Jennifer Johnson-Hanks, Ph.D. (Demography)
Ronald D. Inglehart, Ph.D. (Sociology)
Samuel Lucas, Ph.D. (Sociology)
Kristin Luker, Ph.D. (Sociology)
Jane Maurer. Ph.D. (Goldman School of Public Policy)
Kenneth Wachter, Ph.D. (Demography)
John W. Weisz. Ph.D. (Demography)

Affiliated Faculty

Claude Fischer, Ph.D. (Sociology)
Leo Goodman, Ph.D. (Sociology)
Eugene Hammel, Ph.D. (Demography)
Trond Petersen, Ph.D. (Sociology)
Steve Raphael, Ph.D. (Goldman School of Public Policy)

Graduate Adviser: Dr. John Wilmoth

Program Overview

The Graduate Group in Sociology and Demography (GGSD) is an interdisciplinary training program in the social sciences designed for students with broad intellectual interests. Drawing on Berkeley’s Department of Sociology and Department of Demography, the group offers students a rigorous and rewarding intellectual experience.

The group, founded in 2001, sponsors a single degree program leading to a Ph.D. in sociology and demography. Through the GGSD, Berkeley helps foster an active intellectual exchange between graduate students and faculty in the two disciplines. In addition, faculty and students associated with the group often maintain close ties with other disciplines both inside and outside the social sciences (for example, economics, anthropology, statistics, public health, biology, and medicine).

The specific emphasis of this academic program is the intersection of the fields of sociology and demography. Potential areas of study include—but are not limited to—population history, social stratification, inequality, race, ethnicity, causes and consequences of population growth, the demographic transition, population-environment interactions, economic development, immigration, globalization, gender, family, kinship, child welfare, sexuality, intergenerational relations, aging, mortality, health, disability, fertility, family planning, birth control.

Students in the GGSD typically earn both an M.A. in sociology and an M.A. in demography en route to the Ph.D. in sociology and demography. Students already enrolled in another graduate program at Berkeley who wish to earn a Ph.D. in sociology and demography may apply by executing a change of major. Students not already enrolled at Berkeley who wish to enter the Ph.D. program should complete the required application and submit it to the student affairs officer in the Department of Demography’s main office.

General deadlines for application specified by the Graduate Division apply, as do the general requirements of the Academic Senate and the Graduate Division for Ph.D. degree programs.

Program Requirements

Ph.D. degree requirements include approximately 43 units of coursework drawn primarily from the departments of demography and sociology, plus electives from other departments (specific degree requirements are available from the graduate adviser); an M.A. research paper in sociology; a preliminary examination in demographic methods and substance; a foreign language examination; an oral qualifying examination covering four fields of study (sociological theory, general demography, and two specialized fields); and a Ph.D. dissertation. For details, consult the web site, contact the graduate assistant or see the graduate adviser.

South and Southeast Asian Studies

(College of Letters and Science)

Department Office: 7233 Dwinelle Hall, (510) 642-4564
ls.berkeley.edu/dep/aseas
Chair: Alexander von Rospatk

Professors

Vasudha Dalmia (The Catherine and William C. Magistretti Distinguished Professor, Ph.D. University of Pennsylvania; Demography, Hindi language and literature, Hinduism)†
Robert R. Fogel, Ph.D. (Department of History; University of Pennsylvania; Sanskrit language, Indian epics)
George L. Hart III (Tamils Studies Chair), Ph.D. (Harvard University; Tamil language and literature)
Alexander von Rospatak, Ph.D. (University of Hamburg. Buddhaist Studies, Buddhism in South Asia)
Joanna Williams, Ph.D. (Harvard University. Indian and Southeast Asian art)
S. P. Saini (Emeritus), Ph.D.
James Malson (Emeritus), Ph.D.
J. F. Cook (Emeritus), Ph.D.
Amin Sweeney (Emeritus), Ph.D.

Associate Professors

Lawrence Cohen, Ph.D. (Harvard University Medical anthropologist)
Porelope Edwards, Ph.D. (Monash University. Southeast Asian cultural anthropology)
Rake Ray, Ph.D. (University of Wisconsin. Feminist theory, social movements)
Sylvia Tiwon, Ph.D. (University of California. Berkeley. Modern Indonesian language and literature)
Peter Zimman, Ph.D. (Cornell University. Southeast Asia, Vietnamese)
Bruce R. Pray (Emeritus), Ph.D.
Barend van Nooten (Emeritus), Ph.D.

Assistant Professors

Mu N. Fahim, Ph.D. (Duke University. South Asian Islamic Jeffrey Hadler, Ph.D. Cornell University. Southeast Asian ethnography)

Senior Lecturer

†Usha R. Jain (Emerita), M.A.

Lecturers

Aftab Ahmad, Ph.D. (Jawaharlal Nehru University. Urdu language and literature)
Maria Jio Barrios-LeBlanc, Ph.D. (University of the Philippines. Filipino language)
Sally J. Sutherland Gold, Ph.D. (University of California. Berkeley. Sanskrit language. Indian mythology)
A. Lisa Hulten, Ph.D. (Boston University. Hindi language)
Kausalya Hart, M.A. (Amarnath University. Tamil language and literature)
Susan F. Kepner, Ph.D. (University of California. Berkeley. Thai language and literature)
Nirk Lunde, M.A. (University of Wisconsin. Indonesian language)
Frank Smith, M.L.S. (San Francisco Colleges. Vietnamese language and literature)
Harit Tran, B.S. (University of National Social Sciences and Humanities. Vietnamese language)
Ujkar K. Ubi, B.A. (University of London. Punjabi language, linguistics, and literature)

Undergraduate Adviser: Prof. Tiwon

Head Graduate Adviser: Prof. Dalmia

Department Overview

The Department of South and Southeast Asian Studies offers programs of both undergraduate and graduate instruction in the languages and cultures of South and Southeast Asia. It offers opportunities to explore the rich cultural, social, and religious histories, as well as the living contemporary cultures of these areas. The curriculum covers the classical literary canon, religious literature, folk and popular works, oral traditions and performance media (including recitation, musical and dramatic performance, dance, media, and film), and modern literatures of the colonial and post-colonial periods. Students are encouraged to take advantage of the extensive opportunities for interdisciplinary linkages by pursuing courses offered by the South and Southeast Asia faculty in other departments at Berkeley. Students are advised to choose the Language and Literature emphasis. With the guidance of the faculty and staff advisers, students might choose to pursue, for example, intense study of a language and its literature or broader inquiries into such subjects as the religious, linguistic, and cultural traditions of modern South and Southeast Asia. Students may include in their major programs suitable courses from other departments.

South and Southeast Asian Civilizations:

Students pursuing this track must complete one lower-division sequence on either the civilization and culture of South Asia (SA 5A, 5B) or the civilization of Southeast Asia (SEA 10A, 10B). Students must also complete a minimum of nine additional courses concerning South or Southeast Asia, at least eight of which must be upper-division and at least four of which must be taken in the department.

In consultation with the adviser, students will choose an area of interest (region or art history or literature, for example). At least two courses of the nine described above should cover this area of interest. At least three courses in the area of interest are recommended.

South and Southeast Asian Languages and Literatures:

Students choosing this track must complete one lower-division sequence on either the civilization and culture of South Asia (SA 5A, 5B) or the civilization of Southeast Asia (SEA 10A, 10B) and four semesters of language work (in one of the following languages: Hindi, Urdu, Bengali, Indonesian, Khmer, Panjabi, Sanskrit, Tagalog, Tamil, Telugu, Thai, and Vietnamese).

Students may establish first-year language proficiency through examinations administered by the department although passing an examination will not carry credit.

Students must also complete a minimum of four upper division courses concerning South or Southeast Asia, at least half of which must be taken in the department.

Note: Students who are considering graduate-level study of South or Southeast Asia are strongly advised to choose the Language and Literature emphasis. This would provide the minimum level of language preparation required for most graduate programs.

For both tracks:

The major consists of 42-44 units (normally between 10 and 12 courses).

The undergraduate staff adviser must approve all courses taken outside the department that students intend to use for credit, including courses taken in study abroad programs. The undergraduate faculty adviser must approve any proposed academic waivers or substitutions. Among the upper division courses, it is highly recommended that students include one seminar (SSEAS 190 or an equivalent) that requires significant research and writing on South or Southeast Asia.
The Minor
The minimum requirements for the completion of a minor program are five upper division courses, of which a minimum of three must be completed in the department. All courses in the minor program must be completed on a letter-graded basis. An overall GPA of 2.0 is required in courses used for the minor program.

Honors Program
To be eligible for admission to the honors program, students must attain a 3.5 GPA or higher in courses completed in the major, and a 3.3 GPA in all courses completed in the University. An honors thesis is required. Students who wish to participate must choose a thesis topic in consultation with an honors advisor and apply for admission to the program through the departmental office no later than the first week of spring semester of the senior year.

The M.A./Ph.D Program
This program offers emphases in the following languages and literatures: Hindi, Indonesian, Khmer, Sanskrit, Tamil, and Urdu. Literature is understood in the widest sense to include not only creative writing and cultural expression in the various genres but also sources concerning religion, philosophy, history, and the fine and performing arts. The focus of the cultural expression is also understood to include attention to social, anthropological, economic, and political contexts.

Prerequisites. The prerequisites for admission to the M.A./Ph.D. Program are two years of study in the language of emphasis or the equivalent, and eight upper division or graduate courses dealing with South or Southeast Asia or the equivalent. Candidates with insufficient preparation are advised to take the M.A. program (see below). At the time of admission to the Ph.D. program, the student must be informed as to whether they are eligible for admission to the Ph.D. program.

Degree Requirements. The general requirements for the degree are a minimum of 10 courses undertaken in graduate status at Berkeley (including at least four graduate seminars in the language of emphasis and the methods seminar); a historical knowledge of the area of emphasis; completion of an M.A. thesis (also required of transfer students who have not completed an M.A. degree, or of a 4.0 equivalent work); and competence in one or more additional languages.

Ph.D. candidates will complete an oral qualifying examination in three approved fields (the field of emphasis, a secondary field within the department, and a cognate field); submit a dissertation prospectus; advance to Ph.D. candidacy; and complete the dissertation under Plan B (see the “Graduate Education” section in this catalog). The Sanskrit emphasis also requires completion of a written competency examination in Sanskrit and one course in linguistics. Students holding the M.A. who have not completed the language of emphasis or the equivalent, and advancement to Ph.D. candidacy; and complete the dissertation under Plan B (see the “Graduate Education” section in this catalog). The Sanskrit emphasis also requires completion of a written competency examination in Sanskrit, one course in linguistics, and reading knowledge of one additional language of scholarship in the field, normally French or German. Reading ability in a second South Asian language (e.g., related foreign, as Latin, Greek, Old Iranian) is strongly recommended. Students are expected to complete the requirements within two years. For more detailed information about the Ph.D. program, consult the department web site at ls.berkeley.edu/dept/seeas/programs/graduate_program.html.

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Lower Division Courses
1A-1B. Elementary Telugu. (4:4) Four hours of lecture and two hours of laboratory per week. Prerequisites: 1A. Formerly 8B. This course is an introduction to the study of selected literary texts set in various regions of Southeast Asia. The readings will include works by authors who lived and traveled in Southeast Asia, such as Joseph Conrad, George Orwell, and Somerset Maugham. Translations of works by South East Asian writers will also be examined. Such translations will be used to make comparisons and observations with which to characterize coloniality, nationalism, and post-coloniality. This course satisfies the first half of the Reading and Composition requirement. (F,SP) Sankar

R5A. Self, Representation, and Nation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1A is required. This course is an introduction to the focused on the large body of scholarly texts that have been written about Southeast Asia. Expository and argumentative essays by premier scholars, such as Sir Thomas Stamford Raffles, Margaret Mead, Clifford Geertz, and Benedict Anderson will be examined. Discussions will cover a broad range of theoretical issues including power, gender, and space. This course satisfies the second half of the Reading and Composition requirement. (SP)

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of seminar per week per unit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member in a group of twelve-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP)

50. Special Topics in South and Southeast Asian Culture. (1-2 units) Course may be repeated for credit. Three hours of lecture per week. Current topics in method and theory of South and Southeast Asian culture, with varying instructor. (F,SP)

C51. Introductory Topics in Religious Studies. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Title of each semester to be determined.
C186. South Asia, (4) Three hours of lecture per week. Prerequisites: 3 or other social science introductory course. This course examines the current political, economic, and cultural dynamism of the region. Topics include colonialism, patron-colonialism, gender relations, capitalism, and the postcolonial state. Also listed as Anthropology C186. (F,SP)

190. Seminar in South and Southeast Asian Studies. (3) Course may be repeated for credit as topic varies. Two hours of seminar per week. Designed primarily to give majors sustained and intensive training in reading, writing, and analysis in the discipline. Independent research and a substantial essay required. Topics will vary in accord with faculty and student interests. (F,SP)

H195. Senior Honors. Prerequisites: Consent of instructor. To be eligible for admission for the honors program, students must have and maintain a minimum GPA of 3.5 in all courses completed for the major. In addition, the student must enroll in the final semester of the senior year in H195, a course of supervised research to be guided by an instructor chosen in consultation with the major adviser. On the basis of this research the student will prepare and submit an honors thesis for evaluation. (F,SP)

98A. South Asian Studies. (1-4)

98B. Southeast Asian Studies. (1-4)

198A. South Asian Studies. (1-4) (F,SP)

198B. Tamil. (1-4) (F,SP)

198C. Hindi-Urdu. (1-4) (F,SP)

198D. Malay-Indonesian. (1-4) (F,SP)

198E. Southeast Asian Studies. (1-4) (F,SP)

198F. Sanskrit. (1-4) (F,SP)

199. Supervised Independent Study. Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Four-unit limit per term. (F,SP) Staff

299. Dissertation Preparation and Related Research. Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser. Normally reserved for students directly engaged in writing the doctoral dissertation. (F,SP)

601. Individual Study for Masters Students. Course may be repeated for credit. Course does not satisfy unit or residence requirements for master's degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates of the master's degree. Individual study for the comprehensive or language requirements in consultation with the graduate adviser. (F,SP)

601A. South Asian Studies. (1-8) (F,SP)

601B. Tamil. (1-8) (F,SP)

601C. Hindi-Urdu. (1-8) (F,SP)

601D. Malay-Indonesian. (1-8) (F,SP)

601E. Southeast Asian Studies. (1-8) (F,SP)

601F. Sanskrit. (1-8) (F,SP)

602. Individual Study for Doctoral Students. Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for doctoral degree. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D. (F,SP)

602A. South Asian Studies. (1-8) (F,SP)

602B. Tamil. (1-8) (F,SP)

602C. Hindi-Urdu. (1-8) (F,SP)

602D. Malay-Indonesian. (1-8) (F,SP)

602E. Southeast Asian Studies. (1-8) (F,SP)

602F. Sanskrit. (1-8) (F,SP)

Professional Courses

300. Methods and Problems in Teaching South and Southeast Asian Studies. (3) Course may be repeated for credit. Two hours of seminar per week plus individual conferences and pedagogical videotaping. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing or graduate student status. Team-taught by a faculty member and an advanced graduate student instructor, this weekly seminar will expose GSIs to methods and potential problems in teaching. Building a syllabus, grading, teaching writing and reading comprehension, fairness in the classroom, maintaining enthusiasm, developing a professional teaching portfolio, and campus resources for special needs students will be covered. The seminar will include videotaping and feedback within each student's classroom. (F,SP)
South Asian

Upper Division Courses

108. Psychology and Traditional India. (3)
Three hours of lecture per week. Prerequisites: South Asian 1A, B, or permission of instructor.

111. Themes and Traditions in South Asian Literature. (3)
Three hours of lecture and one hour of discussion per week. Designed as a two-semester sequence, these courses are designed to provide a broad and balanced introduction to the literature of the South Asian subcontinent. The first semester will consist of a thematic approach to the study of the poems and stories of the Sanskrit and Persian traditions, while the second semester will focus on the literature of the modern period. (F,SP)

112. South Asian Languages and Literatures. (3)
Three hours of lecture per week. Prerequisites: South Asian 1A, B, or permission of instructor.

114. Islam in Medieval India. (3)
Three hours of lecture per week. Prerequisites: South Asian 1A, B, or permission of instructor.

116. Hinduism and Ancient India. (3)
Three hours of lecture and one hour of discussion per week. Study of the religious and philosophical roots of Hinduism in ancient India, with a focus on the development of the Vedic and Upanishadic traditions. (F,SP)

118. Hinduism and Medieval India. (3)
Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 1A, B, or permission of instructor.

120. Hinduism and Early India. (3)
Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 1A, B, or permission of instructor.

122. Religion in Early India. (3)
Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 1A, B, or permission of instructor.

124. Modern Indian Literature. (3)
Three hours of lecture per week. Prerequisites: South Asian 1A, B, or permission of instructor.

126. Modern Indian Literature. (3)
Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 1A, B, or permission of instructor.

146. Mughal India through Memoirs, Chronicles and Other Sources. (3)
Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 1A, B, or permission of instructor.

South Asian

Lower Division Courses

RSA. Great Books of India. (4)
Three hours of lecture and one hour of discussion per week. Formerly 5A. Reading and composition based on 10 classic works of Indian literature ranging from the ancient Sanskrit epics to modern novels by Indian and Western authors. Workshops on textual and thematic issues and discussion of major works. (SP)

R5B. India in the Writer’s Eye. (4)
Three hours of lecture and one hour of discussion per week. Formerly 5B. Reading and composition in connection with major works and representations of India, and other Asian cultures, in great works of modern literature. Satisfies the second half of the Reading and Composition requirement. (SP)

R5C. India in History and Film. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 122 or permission of instructor. This course will examine the role of film in the dissemination and reinterpretation of sacred texts and religious practices. Includes a reading of spiritual experience and religious authority at mid-century in an influential modern novel. Examines religious conceptions of space and time, and how these have transformed the concept of a secular state in post-independence India shapes religious policy and practice. Also listed as Religious Studies C163. Staff

140. Hindu Mythology. (4)
Three hours of lecture per week. Prerequisites: 120. Literary and religious aspects of Hindu mythology in selected mythological texts in translation. Also listed as Religious Studies C165. (F,SP) Goldman

141. Religion in South India. (4)
Three hours of lecture and one hour of discussion per week. The development and practice of religion in South India. Emphasis will be on sources translated directly from Indian languages. Subjects covered include: the indigenous religion, the effect of Brahmanical religion, bhakti movements, and the practice of Hinduism in modern South India. G. Hart

142. India’s Great Epics: The Mahabharata and the Ramayana. (4)
Three hours of lecture per week. Prerequisites: 5A, 127, 140, or consent of instructor. The course entails substantial selected readings from the epics—the Mahabharata and the Ramayana in translation, selected readings from the corpus of secondary literature on Indian epic studies, as well as lectures on salient issues in both. Discussion will focus on a variety of historical and theoretical aspects of the epics and on the poetical role of their extraordinary influence on Indian culture. Readings will be supplemented with selected showings of popular cinematic and television versions of the epics. Also listed as South Asian Studies C125. (F,SP) Goldman

144. Islam in South Asia. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. The aim of this course is the study of the culture and history of Muslim communities and institutions in South Asia. South Asia is used to introduce students to the broad historical currents of the expansion of Islam in the Indian subcontinent; the nature of Muslim political authority; the interaction between religious communities; literature, aesthetics and contributions to material culture; the varied engagements and reactions of Muslims to colonial rule; and the contemporary concerns of South Asia’s Muslims. While this is a lecture course, students will be asked to participate in discussions, and the active engagement of participants will be expected. Lectures will be supplemented with visual material, music, and movies where possible. (F,SP) Staff

146. Mughal India through Memoirs, Chronicles and Other Sources. (3)
Three hours of lecture and one hour of discussion per week. Prerequisites: South Asian 1A, B, or permission of instructor. This course will focus on the Mughal Empire during its heyday between the 1550s and the early 1700s, a time of significant developments in both Buddhism and Islam on the subcontinent. Besides witnessing tremendous religious ferment in the South and the emergence of popular devotional movements within Hinduism, the period also observed new mystical and regional articulations of Islam. Also listed as Religious Studies C164. (F,SP) Dalma, Faruqui

152. Literature, Nation, and Film: South Asian Trajectories. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 127 or Religious Studies 161 or consent of instructor. Formerly 128. Introduces history of religious movements in modern India. Examines the dissemination and reinterpretation of religious texts and religious practices. Includes a reading of spiritual experience and religious authority at mid-century in an influential modern novel. Examines religious conceptions of space and time, and how these have transformed the concept of a secular state in post-independence India shapes religious policy and practice. Also listed as Religious Studies C163. Staff

154. Visualizing Sikhism. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 152 or consent of instructor. This course will examine the role of film in the dissemination and reinterpretation of sacred texts and religious practices. Includes a reading of spiritual experience and religious authority at mid-century in an influential modern novel. Examines religious conceptions of space and time, and how these have transformed the concept of a secular state in post-independence India shapes religious policy and practice. Also listed as Religious Studies C165. (F,SP) Goldman

Southeast Asian

Graduate Courses

215A-215B. Reading in Buddhist Texts. (2,4,2,4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: 215A is prerequisite to 215B. One year of Sanskrit and/or consent of instructor. This graduate course introduces students to the primary source material for the study of Indian Buddhist texts in the Sanskrit (or Pali) original introducing the students to different genres, and different aspects of Indian Buddhist. The students taking the course for units rather than a full year are expected to prepare thoroughly every week for the reading of Buddhist texts in the original. They will also be expected to read all related secondary literature that is assigned to supplement the study of the primary source material. In contrast to the students taking the course for 2 units, they will not be expected to write a term paper or to prepare special presentations for class. (F,SP) Staff

Southeast Asian

Lower Division Courses

10A-10B. Introduction to the Civilization of Southeast Asia. (4,4) Three hours of lecture and one hour of discussion per week. Readings, lectures, and discussion of the culture and civilization of Southeast Asia.

A. Mainland Southeast Asia: Covers the modern-day nations of Burma, Cambodia, Laos, and Thailand.

B. Insular Southeast Asia: Covers the modern-day nations of Indonesia, Malaysia, and the Philippines.

10C. Introduction to Modern Indonesian and Malaysian Literature in Translation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 146 or permission of instructor. This course will examine the role of contemporary literature in Indonesian/Malaysian society. Emphasis will be on the socio-political aspects of this literature in historical context. Genres discussed will include poetry, the novel, the short story, and the essay. (F,SP) Tiwon

Upper Division Courses

118. Introduction to Modern Indonesian and Malaysian Literature in Translation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 10C or permission of instructor. This course will examine the role of contemporary literature in Indonesian/Malaysian society. Emphasis will be on the socio-political aspects of this literature in historical context. Genres discussed will include poetry, the novel, the short story, and the essay. (F,SP) Tiwon

120. Indonesian and Malaysian Literature in Translation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 10C or permission of instructor. This course will examine the role of contemporary literature in Indonesian/Malaysian society. Emphasis will be on the socio-political aspects of this literature in historical context. Genres discussed will include poetry, the novel, the short story, and the essay. (F,SP) Tiwon

130. Articulations of the Female in Indonesia. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 10C or permission of instructor. This course examines the impact of the history of literature and literary upon the ways in which perceptions and roles of women are constructed and reinforced in a developing non-Western society. Course material includes litera-
137. Islam and Society in Southeast Asia. (4) Three hours of seminar/discussion/lab/or field trips/videos per week. This undergraduate seminar will be an investigation of discussions on Islam in Southeast Asia, focusing on history, literature, and culture. We will trace the processes through which Islam entered the Malay world in the 13th century, and explore the European colonizers' encounters with Islam as well as the ways that Islam interacted with and resisted colonialism. We will discuss the role of mysticism and of reformists and will also explore the struggles of Islam as a minority religion in Indonesia, the Philippines, and Thailand. Readings will include primary sources in translation, literary texts, ethnographic works, and writings by colonial and local scholars. (F) Hadler

138. Southeast Asian Cultures, Texts, and Politics. (4) Four hours of seminar, two hours of lecture, and four hours of reading/writing per week. Prerequisites: Southeast Asian 10B or consent of instructor. This seminar will focus on the late colonial and national periods in Southeast Asia. Through literary and political texts as well as classical anthropological sources, we will explore different approaches to reading and analyzing Southeast Asian source material. There will be extensive readings of works of fiction and primary source materials, as well as occasional screenings of films. We will tackle broader themes and theoretical approaches to Southeast Asian sources and literatures and will discuss different approaches to reading modern Southeast Asian texts. The course is open to advanced undergraduates and graduate students. (F,SP) Hadler

C114B. Modern Southeast Asia. (4) Three hours of lecture and one hour of discussion per week. Major themes in modern Southeast Asian history with an emphasis on cross-cultural comparisons involving the region’s largest and most populous countries: Thailand, Burma, Vietnam, Indonesia, and the Philippines. Also listed as History C111B. (F,SP) Staff

C164. The Indonesian Connection: Dutch Literature About the Indies in English Translation. (4) Three hours of lecture and one hour of discussion per week. In postcolonial thought on European claims to the region, the “Dutch East-Indies” (the future Indonesia) still arouses questions like: What can we explain that 350 years of Dutch domination by colonial and local scholars? (F,S) Smith

1A-1B. Introductory Bengali. (5,5) Five hours of lecture and one hour of laboratory per week. Prerequisites: Survey of grammar. Graded exercises and readings drawn from Hindi literature, leading to mastery of grammatical structures and essential vocabulary and achievement of basic reading and writing competence. (F,SP) Jain

2A-2B. Introductory Urdu. (5,5) Five hours of lecture and one hour of laboratory per week. The course concentrates on developing skills in reading, writing, speaking, and aural comprehension. Evaluation is based on attendance, written homework assignments, quizzes, dictations, and examinations. Conventional teaching materials may be supplemented by popular songs and clips from contemporary Indian cinema. (F,SP) Staff

100A-100B. Intermediate Hindi. (4,4) Three hours of lecture and laboratory work/visits per week. Prerequisites: 1A-1B. This course acquaints students with representative readings from Hindi texts on pivotal cultural issues from a wide variety of sources, to enable them to acquire cultural competence in the language. Systematic training in advanced grammar and syntax, reinforced by exercises in composition, both oral and written. Special attention to developing communication skills. (F,SP) Jain

101A-101B. Readings in Modern Hindi. (3,3) Three hours of lecture per week. Prerequisites: Two years of Hindi or consent of instructor. This course introduces students to a variety of contemporary literary styles. Weekly readings and discussions of short stories, poems, and dramatic sketches from representative authors. Short written assignments on themes suggested by the readings required. Special attention to matters of style and idiom. 101B is devoted to viewing films based on well-known literary texts, such as those of Premchand, and also to reading scripts and oral and written exercises. Students will acquire language skills sufficient to approach literary texts on their own. (F,SP) Staff

103A-103B. Intermediate Urdu. (4,4) Three hours of lecture and laboratory per week. Prerequisites: Successful completion of Urdu 2A-2B. Introduces various types of written and spoken Urdu; vocabulary building, idioms, and problems of syntax; and conversation. Reading of selected fiction and nonfiction in modern Urdu, including fables, short stories, and poetry. Exercises in grammar, conversation, and composition. (F,SP) Staff

104A-104B. Advanced Urdu. (3,3) Three hours of lecture per week. Prerequisites: Two years of Urdu or consent of instructor. Reading of Urdu prose and poetry in a variety of literary and scholarly styles; composition. Topics in advanced grammar; designed to improve proficiency in speaking, listening, reading, and writing. Students will be expected to converse in a clearly participatory fashion, initiate, sustain, and bring to closure a wide variety of communicative tasks using diverse language strategies. (F,SP) Staff

221. Hindi Literature. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Two years of Hindi or equivalent. The course will focus on readings in modern Hindi fiction, drama and critical essays, occasionally also on the medieval devotional literature in Hindi. Topics will vary from year to year. Students will be expected to write a 20–25 page research paper. (F,SP) Dalmia

Hindi-Urdu

Lower Division Courses

1A-1B. Introductory Hindi. (5,5) Five hours of lecture and one hour of laboratory per week. Prerequisites: Survey of grammar. Graded exercises and readings drawn from Hindi literature, leading to mastery of grammatical structures and essential vocabulary and achievement of basic reading and writing competence. (F,SP) Jain

2A-2B. Introductory Urdu. (5,5) Five hours of lecture and one hour of laboratory per week. The course concentrates on developing skills in reading, writing, speaking, and aural comprehension. Evaluation is based on attendance, written homework assignments, quizzes, dictations, and examinations. Conventional teaching materials may be supplemented by popular songs and clips from contemporary Indian cinema. (F,SP) Staff

100A-100B. Intermediate Hindi. (4,4) Three hours of lecture and laboratory work/visits per week. Prerequisites: 1A-1B. This course acquaints students with representative readings from Hindi texts on pivotal cultural issues from a wide variety of sources, to enable them to acquire cultural competence in the language. Systematic training in advanced grammar and syntax, reinforced by exercises in composition, both oral and written. Special attention to developing communication skills. (F,SP) Jain

101A-101B. Readings in Modern Hindi. (3,3) Three hours of lecture per week. Prerequisites: Two years of Hindi or consent of instructor. This course introduces students to a variety of contemporary literary styles. Weekly readings and discussions of short stories, poems, and dramatic sketches from representative authors. Short written assignments on themes suggested by the readings required. Special attention to matters of style and idiom. 101B is devoted to viewing films based on well-known literary texts, such as those of Premchand, and also to reading scripts and oral and written exercises. Students will acquire language skills sufficient to approach literary texts on their own. (F,SP) Jain

103A-103B. Intermediate Urdu. (4,4) Three hours of lecture and laboratory per week. Prerequisites: Successful completion of Urdu 2A-2B. Introduces various types of written and spoken Urdu; vocabulary building, idioms, and problems of syntax; and conversation. Reading of selected fiction and nonfiction in modern Urdu, including fables, short stories, and poetry. Exercises in grammar, conversation, and composition. (F,SP) Staff

104A-104B. Advanced Urdu. (3,3) Three hours of lecture per week. Prerequisites: Two years of Urdu or consent of instructor. Reading of Urdu prose and poetry in a variety of literary and scholarly styles; composition. Topics in advanced grammar; designed to improve proficiency in speaking, listening, reading, and writing. Students will be expected to converse in a clearly participatory fashion, initiate, sustain, and bring to closure a wide variety of communicative tasks using diverse language strategies. (F,SP) Staff

221. Hindi Literature. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Two years of Hindi or equivalent. The course will focus on readings in modern Hindi fiction, drama and critical essays, occasionally also on the medieval devotional literature in Hindi. Topics will vary from year to year. Students will be expected to write a 20–25 page research paper. (F,SP) Dalmia

Khmer

Lower Division Courses

1A. Introductory Khmer. (5) Five hours of lecture per week. Prerequisites: Two years of Khmer or consent of instructor. This course acquaints students with the basic structures of standard spoken Cambodian and tools for reading and writing elementary texts. Through use of computer-based materials, a textbook, and commu-nicative, students gain a foundation in “survival” spoken Khmer. This involves memorization of question and answer exchanges in Khmer which students are likely to encounter in modern Cambodia. Students become familiar with the Khmer alphabet and important sight-words and to read and write simple sentences on everyday topics. Intended for non-native speakers of Khmer with no oral or aural comprehension in the language. Students will also learn important basic behaviors and courtesies necessary for smooth interaction in Khmer society and culture. (F,SP) Smith, F.

1B. Introductory Khmer. (5) Five hours of lecture per week. Prerequisites: 1A or equivalent. Students complete their study of everyday standard Khmer to a “survival” level. While the memorization of vocabulary and basic exchanges practiced in 1A will make up the majority of material studied, students will have some opportunity to learn to improvise and talk about personal work and research interests in Khmer. Topics include traditional Khmer society and culture, the world of work, religion, health, and conducting daily life in Cambodia. Students learn to read simple authentic texts such as folk tales, personal letters, forms, and roadside signs. Students continue their study of culturally appropriate behavior in the context of Khmer culture, including notions of “saving face” and maintaining social harmony, and how these are expressed in both spoken language and in one’s actions. (F,SP) Smith, F.

Upper Division Courses

100A. Intermediate Khmer. (5) Five hours of lecture per week. Prerequisites: 1A-1B or equivalent, or home exposure to Khmer. Non-native speakers who have completed Beginning Khmer will build spoken pro-fiiciency with emphasis on everyday “storytelling” and the expression of emotions, feelings, and opinions. Students will gain experience reading progressively difficult authentic Khmer texts, including folk tales and newspaper articles. Native speakers with family exposure to or knowledge of Khmer will be introduced to more written and spoken Khmer. They will quickly “catch up” with non-native classmates who have studied the writing system before. All students will study important patterns and structures of Khmer grammar and syntax, and gain a foundation in formal spoken Khmer, express opinions and positions, form arguments, and learn to discuss a variety of topics with educated Khmer speakers. These include Khmer religion, village culture, news, and advertising. (F,SP) Smith, F.

100B. Intermediate Khmer. (5) Five hours of lecture per week. Prerequisites: 100A. Students learn to read roadside signs, scholarly articles, and an entire Khmer novel. Topics include current events in Cambodia, Cambodian history and politics, and a basic overview of traditional Khmer literature. Much of this study will be accomplished by working on projects in groups with other students. One such project will involve the prepa-ra-tion and performance of a play based on sections of the modern Khmer novel students read in this course. All students will design and carry out an independent research project on the topic of their choice (which will account for 30% of the final grade), and present their research at the end of the second semester to an audience of their peers, entirely in Khmer. (F,SP) Smith, F.

101A. Advanced Khmer. (3) Three hours of lecture per week. Prerequisites: Two years of Khmer or consent of instructor. This course continues the themes and goals of 100B. Students will focus on the same broad topics covered in Intermediate Khmer—religion, traditional culture, and the language of public infor-
communication (news and advertising)—but they will learn more advanced vocabulary and grammatical structures necessary for the discussion of these topics with educated native speakers, and read more advanced texts dealing with these topics than the Intermediate students. Additional material beyond the Intermediate curriculum includes reading and analyzing historical and folk tales, learning to discuss the round-robin cycle, and acquiring the tools to discuss and “development” work in Cambodia at a sophisticated level. (F,SP) Smith, F.

101B. Advanced Khmer. (3) Three hours of lecture per week. Prerequisites: Two years of Khmer or consent of instructor. Students will read advanced texts dealing with the topics of politics and history. They will also gain exposure to traditional verse texts, and read, discuss, and undertake group projects based on a variety of modern Khmer short stories. As in the case with Intermediate Khmer, students will also undertake substantial independent study, culminating in a final oral presentation. However, the standard by which both written and oral material will be judged will be much higher for Advanced students. Special attention will be paid to formal speaking style and advanced grammatical structures in Khmer for all students, and colloquial spoken expression for non-native speakers. (F,SP) Smith, F.

Malay/Indonesian

Lower Division Courses

1A-1B. Introductory Indonesian. (5;5) Five hours of lecture and one hour of laboratory per week. Survey of grammar, graded exercises, and readings drawn from Indonesian texts, leading to a mastery of basic language patterns, essential vocabulary, and to achievement of basic reading, writing, and conversational competence. Emphasis on developing communicative skills, (F,SP) Lunde

Upper Division Courses

100A-100B. Intermediate Indonesian. (5;5) Five hours of lecture and one hour of laboratory per week. Prerequisites: 1A-1B. Readings in Indonesian texts, including newspapers, journals, and literature exploring a variety of styles. Systematic study of grammatical and lexical problems arising from these readings. Advanced exercises in composition, oral and written communicative skills, and cultural competence. (F,SP) Lunde

Graduate Courses

210A-210B. Seminar in Malay Letters and Oral Traditions. (4;4) Course may be repeated for credit. Three hours of seminar and one hour of discussion per week. Prerequisites: Two years of Intermediate or equivalent. Reading of a Sanskrit philosophical, logical, or grammatical text, with attention to logical, philosophical, or grammatical features. Text to be chosen in consultation with students. Staff

Tagalog

Lower Division Courses

1A-1B. Introductory Tagalog. (5;5) Five hours of lecture and one to two hours of discussion per week. Prerequisites: 1A or equivalent or consent of instructor. An introduction to the Tagalog grammar, sentence patterns, and basic vocabulary of modern Tagalog. Emphasis is placed on extensive practice in idiomatic Tagalog conversation, with additional practice in reading and writing. (F,SP) Staff

Upper Division Courses

100A-100B. Intermediate Tagalog. (5;5) Five hours of lecture and one to two hours of discussion per week. Prerequisites: 1A-1B, or consent of instructor; 100A. Formerly Tagalog 100A. The goal of this course is to enable students to increase their proficiency in Tagalog at an intermediate-high level of the national ACTFL Proficiency Guidelines. While speaking and listening comprehension will be stressed, training in reading and writing Tagalog will be an integral part of instruction. Films and video/audio materials will supplement written texts. (F,SP) Staff

Tamil

Lower Division Courses

1A-1B. Introductory Tamil. (5;5) Five hours of lecture per week. The grammar of modern Tamil will be covered following readings in simple texts. Practice will also be given in spoken Tamil. (F,SP) K. Hart

Upper Division Courses

101A-101B. Readings in Tamil. (4;4) Three hours of lecture and one hour of discussion per week. Pre-requisites: one-year of Tamil or consent of instructor. These courses introduce students to a variety of literary styles. 101A will consist of weekly readings and discussions of short stories, poetry, and dramatic sketches from representative authors. Short written assignments on themes suggested by the readings are required. Special attention is paid to matters of style and idiom. 101B is devoted to viewing films based on a variety of themes (social, village, mythological, classical Tamil) and to reading scripts and oral written exercises. Students will acquire language skills sufficient to approach literary texts on their own. (F,SP) K. Hart

Graduate Courses

210A-210B. Seminar in Tamil Literature. (4;4) Course may be repeated for credit with consent of instructor. Three hours of seminar and one hour of discussion per week. Prerequisites: 100B. Readings in advanced Tamil. Texts to be determined by the needs of the student. (F,SP) G. Hart

Telugu

Lower Division Courses

1A-1B. Elementary Telugu. (4;4) Four hours of lecture and two hours of laboratory per week. Prerequisites: 1A is prerequisite to 1B. The focus of this course will be on systematic grammar, essential vocabulary, and conversations. The goal is to achieve basic reading, writing, and conversational competence as well as exposure to Telugu culture and traditions through language learning. Students will be able to read short stories by the end of this course with some facility. (F,SP) Sunkari

Thai

1A. Introduction to Thai. (5) Five hours of lecture per week. Introduction to reading, writing, and speaking Thai. Open to anyone who does not know how to read Thai. (Non-reading Thai speakers may take 1A.) Materials include a course reader and Thai films with English subtitles. (F,SP) Smith, F.

1B. Introduction to Thai. (5) Five hours of lecture per week. Prerequisites: 1A. Continuation of 1A. Students who speak Thai and have a limited reading ability may be eligible for this course with the consent of the instructor. Materials include a textbook, supplementary materials, and Thai films. (F,SP) Smith, F.

Upper Division Courses

100A. Intermediate Thai. (5) Five hours of lecture per week. Prerequisites: 1A or consent of instructor. Students who have not passed 1A. Three hours of lecture for students who have not passed 1B. Students must be able to speak, read, and write Thai at an elementary level. Materials include textbook, supplementary materials, and short essays in Thai. (F,SP) Smith, F.

100B. Intermediate Thai. (5) Five hours of lecture per week. Prerequisites: 1A or consent of instructor for students who have not passed 1A. Materials include textbook, supplementary materials, and short essays in Thai. (F,SP) Smith, F.

101A-101B. Advanced Thai. (3;3) Three hours of lecture per week. Prerequisites: 100A. This third-year Thai course will focus on literature written between 1855 and 1955. Readings will be in Thai, with supporting essays in English, providing social/political context. Emphasis will be on evolution of modern Thai society, overthrow of the absolute monarchy in 1932, development of literatures of social preservation and of social consciousness, Thai readings consist of short stories, novels, excerpts, correspondence. (F,SP) Kepner
Vietnamese

Lower Division Courses

1A-1B. Introductory Vietnamese. (5:5) Five hours of lecture and one to two hours of discussion per week. Prerequisites: 1A or consent of instructor. A prerequisite for 1B. Formerly Vietnamese 1A. An introduction to modern spoken and written Vietnamese, including intensive drill on basic phonology and grammar. By the end of the second semester, the student should be able to function successfully in ordinary Vietnamese conversation and read simple texts of moderate difficulty. (F.SP) Staff

Upper Division Courses

100A-100B. Intermediate Vietnamese. (5:5) Five hours of lecture and one to two hours of discussion per week. Prerequisites: 1A-1B, or consent of instructor; 100A or consent of instructor is a prerequisite for 100B. Formerly Vietnamese 100A. A second-year course in Vietnamese vocabulary and syntax with intensive drills on short colloquial expressions and auditory recognition of speech patterns. First semester stresses phraseology, sentence building, rules of composition and development of students’ communicative skills. By the end of the second semester, students will learn to speak and write simple compositions and will have a cursory introduction to Vietnamese literature and sample readings from contemporary Vietnamese writers. (F.SP) Staff

101A. Advanced Vietnamese. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 100B or equivalent. This course is designed for students who have already achieved an intermediate degree of proficiency in speaking, reading, and writing modern Vietnamese. Objective: to move students toward a greater level of fluency in each of these key areas and provide an introduction to the literature and culture of Vietnam by reading Vietnamese language texts. Readings will vary from semester to semester and will include novels, short stories, poetry, and essays from the classical, colonial, post-colonial, and contemporary periods. Topics to be addressed in class are: the nature of the Sino-Vietnamese classical tradition; cultural legacies of French colonialism; the regional character of literary and cultural production; the emergence of a distinctive Vietnamese modernity, and the history of Vietnamese gender norms and relations. Regular attendance and participation in classroom activities is mandatory and no English will be spoken in class. (F.SP) Staff

101B. Advanced Vietnamese. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 101A or equivalent. A continuation of 101A, with the goal of conversational fluency, advanced reading competence, and cultural understanding. This course provides an introduction to the literature and culture of Vietnam through a close reading of Vietnamese language texts. Readings will vary from semester to semester and will include novels, short stories, poetry, and essays from the classical, colonial, and contemporary periods. Among the topics to be addressed in class are: the nature of the Sino-Vietnamese classical tradition, the cultural legacies of French colonialism, the regional character of literary and cultural production, the emergence of a distinctive Vietnamese modernity, and the history of Vietnamese gender norms and relations. Regular attendance and participation in classroom activities is mandatory and no English will be spoken in class. (F.SP) Staff

Spanish and Portuguese

(College of Letters and Science)

Department Office: 5319 Dwinelle Hall, (510) 642-0471
spanish-portuguese.berkeley.edu
Acting Chair: Michael Mascuch

Professors

Milton M. Azevedo, Ph.D. Cornell University. Hispanic linguistics, applied linguistics
Emile L. Bergmann, Ph.D. Johns Hopkins University. Spanish Golden Age literature
Anthony J. Cassandro, Ph.D. Harvard University. Spanish Golden Age literature, literary theory
Dru Dougherty, Ph.D. Harvard University. Modern Spanish literature and theatre.

Associate Professors

Michael Iarocci, Ph.D. University of Pennsylvania. 18th- and 19th-century Spanish literature and culture
Julio Ramos, Ph.D. Princeton University. 19th- and 20th-century Spanish American literature
Jos Rabañal, Ph.D. University of California, Santa Cruz. Latin American studies, colonial and postcolonial studies
Estrada C. Tanaka, Ph.D., M.A. Cornell University. 20th-century Latin American literature and culture
Carmen Slater, Ph.D. Stanford University. Brazilian literature, Hispanic folk traditions

Assistants

Brenda Brochu, Ph.D. New York University. 19th- and 20th-century Latin American literature
Ana Maria Mantuano, Ph.D. Universidade de Nova Lisboa. Luso-African literature

Lecturers

Ana Ameal-Guerra, A.B.D. State University of New York, Albany. A.B.D. University of California, San Diego. Associate Director, lower division Spanish language program
Estelle C. Tarica, Ph.D., M.A. Cornell University. 20th-century Latin American literature and culture
Natalia Brizuela, Ph.D. New York University. 19th- and 20th-century Latin American literature

Department Overview

The sequence of undergraduate and graduate programs of the Department of Spanish and Portuguese is designed to lead from the acquisition of competence in written and spoken Spanish or Portuguese, through an acquaintance with the structure and history of one or both of these languages and a critical understanding of the development and achievements of their literatures in the Old World and in the New, to training in advanced study and independent research. The department’s policy is to maintain a balanced strength between the offerings of Portuguese 11 and 12 or Portuguese 101 and 102.

The Major

Option A: Spanish and Spanish American

Lower Division. Courses 1, 2, 3, 4, and 25 (or their equivalents). Students transferring from other institutions with advanced standing and intending to major in Spanish must present evidence (by examination or otherwise) that their preparation includes the equivalent of Spanish 25.

Upper Division. A minimum of 10 upper division courses totaling at least 30 units in the department, including Spanish 102A and 135W; Portuguese 101 and 102; one course from the literature of Spain or Portuguese; and one other course in Portuguese literature; one course in Portuguese linguistics or theoretical approaches to literature; and four upper division electives from the offerings of the department, two of which may be in a related field of Spanish or Spanish-American literature, linguistics, or culture. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

Option B: Luso-Brazilian

Lower Division. Portuguese 11 and 12 or Portuguese 101 and 102 (or their equivalents). Students transferring from other institutions with advanced standing and intending to enroll in the program must present evidence (by examination or otherwise) that their preparation includes the equivalents of Portuguese 11 and 12 or Portuguese 101 and 102.

Upper Division. A minimum of 10 upper division courses totaling at least 30 units in the department, including Portuguese 103: Portuguese 104 and one other course in Brazilian literature; Portuguese 107A or 107B and one other course in Portuguese literature; one course in Portuguese linguistics or theoretical approaches to literature; and four upper division electives from the offerings of the department, two of which may be in a related field of Spanish or Spanish-American literature, linguistics, or culture. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

Option C: Iberian or Latin-American

Lower Division. Spanish 1, 2, 3, 4, and 25 (or their equivalents). Students transferring from other institutions with advanced standing and intending to enroll in the program must present evidence (by examination or otherwise) that their preparation includes the equivalent of Spanish 25.

Plan 1: Iberian

Upper Division. A minimum of 10 upper division courses totaling at least 30 units in the department, including Spanish 102A and 135W; Catalan 101 or Portuguese 101; one course from the literature of Spain; and one course from the literatures of Portugal or Catalonia; five other courses in Spanish, Portuguese, or Catalan language, literature, linguistics, or culture, from the offerings of the department. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

Plan 2: Latin American

Upper Division. A minimum of 10 upper division courses totaling at least 30 units in the department, including Spanish 102A and 135W; Portuguese 101; one course from the literature of Spanish America; one course from the literature of Brazil; five other courses in Spanish/Portuguese language or linguistics, or in Brazilian or Spanish-American literature or culture, from the offerings of the department. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

If the student from previous training has the equivalent of Portuguese 101, Portuguese 102, or Catalan 101, any or all of these courses may be excused and replaced by further electives as appropriate.

Option D: Hispanic Languages and Bilingual Issues

Lower Division. Spanish 1, 2, 3, 4, and 25 (or their equivalents). Students transferring from other institutions with advanced standing and intending to enroll in the program must present evidence (by examination or otherwise) that their preparation includes the equivalent of Spanish 25.
Upper Division. A minimum of 9 upper division courses totaling at least 27 units, of which at least 21 upper division units must be taken in the department. Cross-listed courses count only once toward the major. In addition, students are required to complete one course (upper or lower division) from outside the department, specifically related to the major. Department courses must include the following distribution:

2. Core linguistics courses: Spanish 100 (3 units); one course in Spanish linguistics that includes discussion of aspects of Spanish/English contrastive linguistics, including but not limited to problems of interlanguage equivalences and translation (3 units); one course in Spanish linguistics such as Spanish 164, Dialectology, or equivalent, dealing with language variation (3 units).

Courses taken outside the department must be approved by the departmental major adviser. These courses must have the following distribution (list offered as an example of possible course combinations; a more complete list is available from the department): (1) one upper division course dealing with linguistic issues, such as Psychology 125 or Education 141 (3 units); (2) one upper division course in U.S. Hispanic literature/culture, such as Chicano Studies 150 or 170 or 172; (3) one course, lower or upper division, specifically related to the major. This course may be taken on a passed/not passed basis.

Honors Program
To be admitted to the honors program in Options A, B, C, or D, students must have completed at least two semesters of work at Berkeley with an overall GPA of at least 3.3 and a GPA of at least 3.6 in courses in the major. Students must also have the approval of the major adviser in consultation with other members of the department.

Students admitted to the honors program must complete, preferably before, but not later than, the second semester of the senior year, seven core courses for either option A, B, C, or D or give evidence, by special examination, of equivalent preparation. Students passing an examination in lieu of any of the required courses will be deemed to have satisfied the corresponding requirement for the major, though without obtaining unit credit.

Students in the honors program must complete the special honors courses H195A-H195B, which are offered each semester. These courses consist of a study and the writing of a thesis over the course of two semesters under the direction of an appropriate member of the department.

The Minor
General Requirements: (1) courses must be completed on a letter-grade basis; (2) a minimum GPA of 2.0 in the courses of the minor; (3) a minimum of three of the courses to be completed at Berkeley; (4) no more than one of the courses may also be used for a major program of another department or group; (5) courses in English translation and Spanish may not be offered in satisfaction of the elective portions of the minor programs.

The Minor in Spanish Language and Literatures
Prerequisites: Spanish 1, 2, 3, 4, and 25 (or their equivalents). Requirements: Five upper division courses in Spanish/Spanish American language, linguistics, literature, or culture, selected from the offerings of the department.

Minor in Spanish Linguistics
Prerequisites: Spanish 1, 2, 3, 4, and 25 (or their equivalents). Requirements: Spanish 100 (introduction to Spanish Linguistics), and four other upper division Spanish linguistics classes, from among Spanish 161, 162, 163, 164, 165AC, 166, and 179.

Minor in Luso-Brazilian Language and Literatures
Prerequisites: Portuguese 11 and 12 or 101 and 102 (or their equivalents). Requirements: Five upper division courses in Portuguese/Brazilian language, linguistics, literature, or culture, selected from the offerings of the department (excluding the prerequisites of Portuguese 101 and 102).

Procedures: No formal declaration of enrollment in the minor program is required. Upon completion of the program, however, students interested in either program should, therefore, work closely with the departmental adviser for the minor program to assure proper fulfillment of the requirements.

Recommended for all programs: Further study in Latin, and in Western European, Semitic, and Latin American literatures.

Latin American Studies. For the group major in Latin American studies, see the “Latin American Studies” section in this catalog.

Graduate Program
Students are admitted for post baccalaureate work leading to the Ph.D. degree. The Department of Spanish and Portuguese administers two doctoral programs: Romance Languages and Literatures, and Hispanic Languages and Literatures.

I. The Program in Romance Languages and Literatures

Prerequisites for admission: This program requires for admission an A.B. degree with a major in Spanish or Portuguese; (a) the undergraduate major at Berkeley (Option A), or with a corresponding major in Portuguese; (b) the completion of eight courses of postbaccalaureate work in Hispanic literatures, linguistics, and/or philology, of which at least six must be in strictly graduate courses; (c) work at an advanced level in an appropriate collateral subject (literature or linguistics). For admission to the qualifying examination, the student’s record must show one graduate course in historical or descriptive Hispanic linguistics, one in literary or linguistic theory, and a reading knowledge of two foreign languages pertinent to the specialization. The student must also give evidence of a comprehensive knowledge of Spanish and Spanish American or of Luso-Brazilian literature or a basic knowledge of Hispanic and general linguistics. (The chair, in consultation with the graduate advisers, will appoint a committee which, during the student’s first term in the program, will evaluate previous preparation and determine what additional courses and/or examinations, if any, will be required.)

The qualifying examination will test the student’s knowledge of a specific, emphasized field to be selected in consultation with the graduate adviser from among the following: medieval Hispanic literature, Spanish and Portuguese literatures, Latin American literatures, and Romance philology, with emphasis on Spanish, as well as further command of one broad, integrated field (period, movement, or genre) in both Italian and French literature.

Plan III requires an in-depth knowledge of the structure and history (internal and external) of Spanish, and either the history or structure of French or Italian.

II. The Program in Hispanic Literatures

Prerequisites for admission: (a) an A.B. degree with a major in Spanish equivalent to the undergraduate major at Berkeley (Option A or Option B), or with a corresponding major in Portuguese; (b) the completion of eight courses of postbaccalaureate work in Hispanic literatures, linguistics, and/or philology, of which at least six must be in strictly graduate courses; (c) work at an advanced level in an appropriate collateral subject (literature or linguistics). For admission to the qualifying examination, the student’s record must show one graduate course in historical or descriptive Hispanic linguistics, one in literary or linguistic theory, and a reading knowledge of two foreign languages pertinent to the specialization. The student must also give evidence of a comprehensive knowledge of Spanish and Spanish American or of Luso-Brazilian literature or a basic knowledge of Hispanic and general linguistics. (The chair, in consultation with the graduate advisers, will appoint a committee which, during the student’s first term in the program, will evaluate previous preparation and determine what additional courses and/or examinations, if any, will be required.)

The qualifying examination will test the student’s knowledge of a specific, emphasized field to be selected in consultation with the graduate adviser from among the following: medieval Hispanic literature, Spanish and Portuguese literatures, Latin American literatures, and Romance philology, with emphasis on Spanish, as well as further command of one broad, integrated field (period, movement, or genre) in both Italian and French literature.

Plan III requires an in-depth knowledge of the structure and history (internal and external) of Spanish, and either the history or structure of French or Italian.
15. **Intensive Beginning Spanish Workshop.** (10) Ten hours of lecture and three hours of laboratory per week. A beginning intensive course that is the equivalent of Spanish 1 and 2. (F,SP) Staff

16. **Intermediate Spanish Workshop.** (10) Ten hours of lecture and three hours of laboratory per week. Prerequisites: 2. An intermediate intensive course that is the equivalent of 3 and 4. (F,SP)

21. **Spanish for Bilingual Students. First Course.** (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: Consent of instructor. Formerly 71.

22. **Spanish for Bilingual Students, Second Course.** (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: Consent of instructor. Formerly 72.

24. **Freshman Seminars.** (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are open to all departments, and topics vary from department to department and semester to semester.

25. **Reading and Analysis of Literary Texts.** (3) Three hours of lecture per week. Prerequisites: 4 or equivalent. Introduction to literary concepts, terminology, and theory with application to poetry, dramatic, and prose texts. Required of majors and minors. (F,SP) Staff

39. **Freshman/Sophomore Seminar.** (1) Course may be repeated for credit as topic varies. Three hours of seminar per week per unit for four units. Three hours of seminar per week per unit for five units. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Prerequisites: At discretion of instructor. Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores. (F,SP)

98. **Directed Group Study.** (1-4) Course may be repeated for credit. Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One to four hours of group study per week. Must be passed/not passed basis. Prerequisites: Consent of instructor. Group study of a topic not included in the regular departmental curriculum. Topics may be initiated by students under the sponsorship and direction of a faculty member of the Spanish and Portuguese department’s faculty.

**Upper Division Courses**

Unless otherwise indicated, Spanish 25 or its equivalent is prerequisite to all upper division courses.

100. **Introduction to Spanish Linguistics.** (3) Three hours of lecture per week. Prerequisites: Spanish 25; proficiency in Spanish. Overview of contemporary Spanish linguistics. The course surveys areas such as: the history of Spanish; the goals and methodology of the language sciences; the Spanish sound system; the form and function of words; syntactic structures; and contact varieties (dialectal varieties, registers, bilingualism, etc); and a burning question in contemporary linguistics: Spanish in the U.S.

102A. **Advanced Grammar and Composition.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. (F,SP)

102B. **Advanced Grammar and Composition.** (3) Students majoring in Spanish are required to take 102C. Deficiency in 102C cannot be removed by completing 102B. Three hours of lecture per week. Prerequisites: 25 or equivalent. (F,SP)

102C. **Creative Writing in Spanish.** (3) Three hours of seminar per week. Prerequisites: 102A with a grade of A- or better. The course will be structured as a fiction writing workshop, with emphasis on short stories. It will have three main components: (a) writing of short stories outside of class; (b) short and varied creative writing in class; and (c) reading and discussion of critical texts on creative writing, as well as selected short stories used as examples of different narrative techniques.

104A. **Survey of Spanish American Literature.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. Beginnings to 1880. (F)

104B. **Survey of Spanish American Literature.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. 1880 to the present. (SP)

107A. **Survey of Spanish Literature.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. Beginnings to 1700. (F)

107B. **Survey of Spanish Literature.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. 1700 to the present. (SP)

109. **Spanish Drama of the 16th and 17th Centuries.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent.

110. **Teaching Across the Arts.** (3) Three hours of lecture per week. Prerequisites: 25, 102A. This course explores the different interpretations that Spanish narratives offer of musical practices (jazz, salsa, indigenous music, serial music), musicians, and music itself as an artistic and intellectual discourse. How do authors include music and the idea of sonority that it implies through narrative forms? How does the linguistic, literary discourse embody musical forms and contents? This transatlantic course is purposefully designed to explore the role of music in Hispanic novels and societies. (F,SP) Staff

111A-111B. **Cervantes.** (3-3) Three hours of lecture/seminar per week. Prerequisites: 25 or equivalent. Analysis and discussion of selected works by Cervantes, including his dramatic output. (F,SP)

112. **Studies in Spanish Culture.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. An overview of the culture of Spain, through emphasis on selected topics.

113. **Topics in Latin American Culture.** (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 25 or equivalent. The purpose of this course is to explore the roots of Latin American cultures, the region’s search for identity, and some of the main problems it faces today. We will study great social movements, like the Mexican and Cuban revolutions, and analyze their causes and consequences and, especially, their expression in art (e.g. the muralist movement in Mexico, the “corridos” and the narrative of the Mexican revolution, etc.).

114. **The Contemporary Spanish American Novel.** (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. (F,SP)

116. **Colonial/Postcolonial Studies.** (3) Three hours of lecture per week. Prerequisites: 25. This course juxtaposes verbal and visual colonial texts with key essays in postcolonial theory, e.g., Said, Bhabha, Spivak, Hulme, Guha, etc. Readings include representative texts from different genres: relations, chronicles, letters, epic poetry, lyrical poetry, and novel. The course is not exclusively concerned with written texts using the Latin alphabet, but will also study other cultural artifacts such as maps, icons, and Native American writing systems. Rabasa

117. **The Picaresque Novel.** (3) Three hours of lecture per week. Prerequisites: 25. This course will focus on the discourse of poverty in (primarily) Spanish narrative literature, both thematically and formally. Readings will include ancient Roman novels and medieval Arabic and Italian stories, the “core” readings of Spanish texts, and reproductions of the picaresque sensibility. (F,SP) Navarrete

123A-123B. **Modern Spanish Prose Fiction.** (3,3) Three hours of lecture per week. Prerequisites: 25 or equivalent. (F,SP)

131. **The Spanish American Short Story.** (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 25. Formerly 102W. Brief panorama of the Spanish-American short story, beginning with Modernism, emphasis on two or three different types, e.g., fantastic, realistic, humorous, etc.

135. **Studies in Hispanic Literature.** (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 25 or equivalent.

135AC. **American Cultures Special Topics.** (3) Course may be repeated for credit. Three hours of lecture per week. Special topics in American Cultures. This course satisfies the American Cultures requirement. (F,SP) Staff

135W. **Studies in Hispanic Literature—Writing intensive.** (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 102A. Limited to majors. Formerly 102W. Special topics in Hispanic literature. Fulfills “writing intensive” course requirement for the major. (F,SP)

148. **Family Stories.** (1) Two hours of lecture and one hour of discussion for five weeks. Must be taken on a passed/not passed basis. Prerequisites: Consent of the graduate or undergraduate major adviser. A short course designed to take advantage of short-term visitors who have expertise in the area of Spanish American literature. Professor Gwen Kirkpatrick will teach the first introductory class and lead the first discussion section. The remaining four seminars and four discussion sections will be taught by distinguished Chilean novelist Diamela Eltit. She has been invited to the Berkeley campus by the Chancellor as Regents’ Lecturer. One short paper is required.

161. **Spanish Phonetics and Phonology.** (3) Three hours of lecture/discussion per week. Prerequisites: 25 and proficiency in Spanish. The aim of this course is to offer an introduction to the theories and practices of articulatory phonetics and phonology of Spanish. In class we will develop exercises about phonetic and phonological definitions, recognition, production and transcription, which will help the student to acquire skills to analyze the phonological system of Spanish.

162. **The Structure of Spanish.** (3) Three hours of lecture per week. Prerequisites: 100 (or equivalent with consent of instructor); proficiency in Spanish. Analysis of major syntactic structures of Spanish. The course surveys the parts of speech, major processes of word formation, and sentence structure (simple sentences, coordination, juxtaposition, and subordination). There will be intensive practice in analytical problems. (F,SP)

163. **Issues of Multilingualism.** (3) Three hours of lecture per week. Prerequisites: 100 and proficiency in Spanish. Issues on the interaction of language, culture, and society in multilingual/multicultural settings. Critical examination of multilingualism in language conflict situations, educational policies and language planning, language socialization and ideologies, bilingual communicative practices and code-switching. Topics
illustrated by case studies from Spanish-speaking communities, including the U.S.

164. Spanish Dialectology. (3) Three hours of lecture/discussion per week. Prerequisites: 100 or equivalent. This course will analyze how the Spanish language varies in different regions where it is spoken (Spain, Spanish America, the United States) through an analysis of social and regional dialects and their representation in select literary works. It will address issues such as the establishment of a standard for the language, the relationship between the standard and nonstandard varieties, and its cultural and social implications. (F,SP)

165AC. Coexistence and Conflict: Amerindian, English, and Spanish in the Southwest. (3) Three hours of lecture/discussion per week. Prerequisites: 25 or consent of instructor. After a brief historical introduction, the main emphasis will be on the U.S.-Spanish relationship, focused on current peripheral conflict and cultural issues. (F)

166. Language and Style. (3) Three hours of lecture per week. Prerequisites: 25. This course will analyze general principles of sociolinguistics and language variation. It will analyze social issues related to language and social group membership in Latin America and the U.S., as well as the role of Spanish as a world language. Specific topics will include an overview of the origins of Spanish, contact with other languages, regional and social variation, language policy, and Spanish in the media. Ultimately, this course will provide a forum for reflection on the social implications of language. The readings will provide data and theory, and discussions will contribute to developing the habit of thinking critically about language. (F,SP) Azevedo

C178. Cultural Studies. (4) Three hours of lecture/discussion per week. Although the Caribbean has been recognized in recent years as being one of the most compelling areas in regard to questions of inter-cultural relations, colonialism, and miscegenation, the Dutch-speaking part of it has somehow been neglected. This course intends to give an opportunity to those who do not necessarily have a command of Dutch language or their knowledge of the Latin American and Caribbean history, culture, and literature. Also listed as Dutch C178 and African American Studies C178. (F,SP) Staff

179. Advanced Course in Hispanic Linguistics. (3) Course may be repeated for credit as topic varies. Three hours of lecture/discussion per week. Prerequisites: 100 or consent of instructor.

179B. Special Topics in German. (3) Course may be repeated for credit as topic varies. Three hours of lecture/discussion per week. Prerequisites: 25 or consent of instructor. This course explores what research on bilingualism says about what it means to learn someone else’s language—the cognitive, affective, and social dimensions of second language acquisition, the relationship of language and culture, and language and identity. Fieldwork will include observing, recording, and transcribing segments of foreign language classrooms, visits to bilingual schools in the area, and interviews with native speakers of second languages in the community. (F,SP) Azevedo

185. Senior Course in Hispanic Literature. (3) Course may be repeated for credit as topic varies.

Three hours lecture/seminar per week. Prerequisites: Restricted to majors in Spanish with 90 units of university work, including 15 upper division units in Spanish or American literature.

H195. Spanish Honors Course. (3) Individual conferences. Prerequisites: 25 or equivalent. Senior honors standing. Limited to senior honors candidates. Directed study centering on the preparation/completion of an honors thesis (see Honors Program, Option A, above). (F,SP)

H195A. Spanish Honors Course. (1.5) Individual conferences. Prerequisites: Spanish and Portuguese major, 3.6 GPA in the major, 3.3 GPA overall. This is a two-semester course, graded at the end of each semester, which will indicate that student major must pass all requirements before the thesis can be written. During the second semester, each student will enroll in H195B and write an honors thesis.

H195B. Spanish Honors Course. (1.5) Individual conferences. Prerequisites: Spanish and Portuguese major, 3.6 GPA in the major, 3.3 GPA overall. This is a two-semester course, graded at the end of each semester. During the second semester, each student will write an honors thesis. Completion of the thesis is required for a final grade in H195B.

197. Field Studies. (1-4) Course may be repeated for credit as topic varies. A comprehensive field trip per semester. Three or four hours of field work per unit. Must be taken on a pass/not pass basis. Prerequisites: Consent of instructor. Students will assist in the teaching of Spanish in local elementary and secondary schools. They will meet regularly with the instructor in charge and submit written reports. (F,SP)

198. Supervised Group Study. (1-4) Enrollment is restricted; see the “Introduction to Courses and Curricula” section of this catalog. One to four hours of individual direction per week. Must be taken on a pass/not pass basis. Group study of a topic not included in the regular department curriculum. Topics may be initiated by students under the sponsorship and direction of the Spanish and Portuguese department’s faculty. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a pass/not pass basis. Prerequisites: Senior honors status plus pass/fail 25 and enrollment restrictions apply; see the “Introduction to Courses and Curricula” section of this catalog. (F,SP)

Graduate Courses

200. Proseminar. (1) One and one-half hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This course is designed to give all new graduate students to the research conducted in the department. Readings will consist of research papers chosen by members of the department. (F)

200A. Spanish Proseminar. (1) One and one-half hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly 200. This course is designed to introduce all new graduate students to the research conducted in the department. Readings will consist of research papers chosen by members of the department. (F)

200B. Research Seminar I. (4) Three hours of lecture per week. Formerly 2004. This research seminar introduces students to central questions and debates in literary and cultural studies in Spanish and Portuguese. The second objective consists of developing research strategies and the mastery of different academic genres. It will function to introduce students to the research in such a way that they are able to identify potential students. Students write book reviews, précis, position papers, and abstracts for applying to conferences, and conference-length papers. (SP)

200C. Research Seminar II. (1 or 2) One and one-half hours of lecture per week. Formerly 200B. The objective of this course is to train students in developing article-length critical writing. This is a writing workshop designed to assist students in writing an original research paper. Students will develop a research project conceived in one of their other courses and develop a research proposal. Students will submit a major paper with a significant critical bibliography. This course will serve as a forum for students to meet and discuss their projects, and as an organizational vehicle for their research. (F)

201. Literary Linguistics. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Applications of linguistic theory to literary texts and the analysis of fiction prose, discursive analysis, and the literary representation of speech. (F,SP) Azevedo

202. History of the Spanish Language. (4) Two or three hours of lecture per week. Formerly 2024. A survey of the development of Spanish from prehistoric times to the present, particularly in Europe and the Americas but with due consideration of it elsewhere in the world. The course will be based on a standard textbook with assigned outside readings on specific topics; language samples, chiefly literary, from different periods and regions will be analyzed. There will be one mid-term exam, plus a brief term paper (10 pages) on selected aspects of some variety of Spanish.

C202. Linguistic History of the Romance Language. (4) Three hours of lecture per week. Prerequisites: Knowledge of at least two of the major Romance languages (French, Italian, and Spanish); Formerly Romance Philology 200. Linguistic development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, combining historical grammar and external history. Also listed as Italian Studies C201 and French C202. (F,SP)

209. Seminar in Hispanic Linguistics. (4) Course may be repeated for credit. Three hours of seminar per week. (F,SP)

210. Introduction to Medieval Hispanic Literature. (4) Two or three hours of lecture per week.

211. Major Prose Authors of the Golden Age. (4) Two or three hours of lecture per week.

223. Major Poets of the Golden Age. (4) Two or three hours of lecture per week.

224. Major Dramatists of the Golden Age. (4) Two or three hours of lecture per week.

227B. The Spanish Novel Since 1850. (4) Two or three hours of lecture per week.

229. Modern Spanish Poetry (After Romanticism). (4) Two or three hours of lecture per week.

232. Colonial Spanish American Literature. (4) Two or three hours of lecture per week.

234A. Modern Spanish American Poetry. (4) Two or three hours of lecture per week. A comprehensive study of Latin American poetry from 1880-1920, on the poetico de modernismo. Special attention given to the work of Ruben Darion and the heritage of Symbolism in Latin America.

240. Techniques of Literary Scholarship. (4) Two or three hours of lecture/seminar per week.

242. Literary Theory and Criticism. (4) Course may be repeated for credit as topic varies. Three hours of lecture/seminar per week.

248. Special Topics. (1.5) Course may be repeated for credit as topic varies. Four hours of lecture/discussion per week for five weeks. Topics will vary from semester to semester. Please consult the graduate catalog for current topics.

260. Cervantes. (4) Course may be repeated for credit with different topic and consent of instructor. Two or three hours of lecture/seminar per week. Prerequisites: Graduate standing or consent of instructor. The reading and interpretation of the works of Cervantes.
such as Don Quixote, the Novelas ejemplares, the Persiles, the Galatea, and the dramatic works. Focus will change according to the needs and interests of members of the course, but will address such issues as the place of Cervantes' works in literary history, the background contexts of Cervantes' works, and contemporary approaches and movements in Cervantes criticism.

276B. The Spanish American Novel. (4) Two or three hours of lecture/seminar per week.

280. Seminar in Spanish American Literature. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. (F,SP) Staff

285. Seminar in Spanish Literature. (4) Course may be repeated for credit as topic varies. Two or three hours of lecture/seminar per week.

298. Special Study for Graduate Students. (2-8) Course may be repeated for credit. Individual conferences. Prerequisites: Graduate standing. Individual conferences on special programs of study or research in a restricted field not covered by available courses or seminars. (F,SP)

299. Special Advanced Study. (3-8) Restricted to students writing doctoral dissertations. Individual conferences. Sections 1-20 to be graded on a satisfactory/unsatisfactory basis. Prerequisites: Restricted to students writing doctoral dissertations. (F,SP)

601. Individual Study for Master's Students. (3) Course does not satisfy unit or residence requirements for master's degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Approval of graduate adviser. Individual study, subject to the approval of the graduate adviser, intended to provide an opportunity for students to prepare for the comprehensive examination for the M.A. degree. May be taken only in the semester in which the examination is attempted. (F,SP)

602. Individual Study for Doctoral Students. (3) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Approval of graduate adviser. Individual study, subject to the approval of the graduate adviser, intended to provide an opportunity for students to prepare for the qualifying examination required of candidates for the Ph.D. May be taken only in the semester in which the examination is contemplated or in the immediately preceding one. (F,SP)

Professional Courses

301. Teaching Spanish in College. (3) Three class hours on foreign language teaching and learning per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate student instructor status required. Lectures on methodology, grading and testing, class preparation, textbook evaluation, course design. Includes language laboratory observations and supervised classroom practice. Required for all new graduate student instructors. (F)

302. Practicum in College Teaching of Spanish and Portuguese. (3-4) Course may be repeated for credit. Three to six hours of classroom teaching with regular supervision per week; evaluation conferences. Must be taken on a satisfactory/unsatisfactory basis. (F,SP)

Portuguese

Lower Division Courses

11. Elementary Portuguese. (5) Five hours of lecture and two hours of laboratory per week. Beginner's course. Not open to students who have taken Portuguese 101 or equivalent, nor native speakers.

12. Elementary Portuguese. (5) Four hours of lecture and four hours of laboratory per week. Prerequisites: 11, or equivalent. Continuation of Portuguese 11. Not open to students who have taken Portuguese 101 or equivalent, nor to native speakers. Comple-
Catalan

Upper Division Courses

101. Catalan for Advanced Students. (3) Three hours of lecture per week. Prerequisites: Credit for 16-20 units or equivalent of another Romance language, or consent of instructor. An intensive course for students with no previous study of Catalan.

Statistics

(Committee of Letters and Science)

Department Office: 367 Evans Hall, (510) 642-2781
stat.berkeley.edu
Chair: John Rice, Ph.D.

Professors

David J. Aldous, Ph.D. Cambridge University. Theoretical and applied probability
Peter E. Bickel, Ph.D. University of Wisconsin. Machine learning, statistical learning theory
Ching-Shui Cheng. Ph.D. Cornell University. Experimental design
Steven N. Evans, Ph.D. Cambridge University. Probability and stochastic processes
Leo A. Goodman, Ph.D. Princeton University. D.Sc. (hon.)
Robert J. Hall. D.Sc. (hon.)
Michael J. Klass, Ph.D. University of California, Los Angeles.
Theoretical and applied probability
Deborah Nolan, Ph.D. Yale University. Asymptotic theory, teaching of statistics, technology in education
Yuval Peres, Ph.D. Hebrew University, Multivariate Probability theory and Hausdorff dimension
James W. Pitman, Ph.D. University of California, Berkeley. Probability, stochastic processes

Adjunct Professor

Lisa Goldberg, Ph.D. Brandeis University. Applied probability and statistics

Associate Adjunct Professor

Phil Spektor, Ph.D. Texas A & M University. Statistical computing

Senior Lecturer

Roger Purves, Ph.D. University of California, Berkeley. Foundations of probability, measurability
Juliet P. Shaffer (Emerita), Ph.D.

Statistical Computing Facility

John Rice (Director), Ph.D. University of California, Berkeley. Applied science

Department Overview

The Department of Statistics grants the B.A., M.A., and Ph.D. degrees in statistics. The undergraduate and graduate programs allow students to participate in a field that is growing in breadth of application and importance. Understanding the natural and human worlds in the “information age” increasingly requires a statistical approach, and stochastic models and methods are essential components of research and applications across a vast spectrum of fields. The University of California’s Department of Statistics provides students with world-class resources for study and research, including access to the extensive computational facilities maintained by the Statistical Computing Facility.

Course Services.

The department offers a variety of introductory service courses covering both in mathematics and in topics emphasized: Statistics 2 requires only high school mathematics; 20, 21, and 25 require some calculus; 20 is for students generally; 21 is intended for business students; and 25 for engineers. Statistics 131A is an upper division course, emphasizing inference methods used in social and life sciences. Statistics 134 is a thorough beginning probability course. Statistics 135 treats inference concepts used in engineering and science. Statistics 200A and 200B are graduate-level versions of 134 and 135, respectively.

The Major

Lower Division Courses. Required: Mathematics 1A-1B and 53-54. Mathematics 1A-1B and 53-54 must be completed with minimum grades of C in both. The theory and applications of linear algebra in linear algebra in Mathematics 53-54 can obtain this material by taking Mathematics 49. Contact the undergraduate assistant in 367 Evans Hall for further information about requirements for admission to the major. Recommended: Statistics 20, 21, or 25 and some familiarity with computers.

Upper Division Courses.

Statistics 133; Statistics 101 or 134; Statistics 102 or 135, and three courses from Statistics 150, 151A, 151B, 152, 153, 155, and 157, including at least one course with a laboratory. In addition, either (1) Mathematics 110 and two courses from Mathematics 104, 105, 113, 126, 128A, and 185; or (2) a program of three upper division courses from a field in which statistics is applied. The sequence Statistics 200A-200B may be substituted for Statistics 134 (or 101) and 135 (or 102). The courses selected for the major must have the approval of the undergraduate faculty adviser, who may authorize reasonable exceptions and substitutions, including substituting graduate statistics courses for 150, 151A, 151B, 152, 153, 155, and 157.

Double Major.

Students are encouraged to combine the statistics major with a major in mathematics, applied mathematics, computer science, or a field of statistical application such as economics.

Honors Program.

Students with an overall 3.3 GPA or higher and a 3.3 GPA or higher in the major may apply for admission to the honors program with the approval of the major adviser. The program consists of course H195, which includes reading in a special topic and writing a thesis.

Preparation for Graduate Study.

Undergraduate students interested in graduate study in statistics need a strong foundation in mathematics as well as probability and statistics. To prepare for Ph.D. studies in statistical theory or probability, students should take Mathematics 104, 105, 110, 113, and 185. To prepare for Ph.D. studies in applied statistics or for an M.A. program, students should take at least a year of upper division probability and statistics (or course 200A-200B) and Mathematics 104 and 110.

Preparation for Teaching.

Those interested in teaching statistics and mathematics in middle or high school should take the following courses: all lower division courses required for the statistics major; Statistics 133; Statistics 101 or 134; Statistics 102 or 135; and Statistics 150, 151A, 151B, 152, 153, 155, or 157, including at least one course with a laboratory. In addition, Mathematics 110, Mathematics 113, Mathematics 150, and either Mathematics 152 or Mathematics 153 are required.

The Minor

Lower Division Courses. Required: Mathematics 1A-1B and 53-54. Mathematics 1A-1B and 53-54 must be completed with minimum grades of C in each.

Upper Division Courses. Statistics 101 or 134; Statistics 102 or 135; and three courses from Statistics 150, 151A, 151B, 152, 153, 155, and 157, including at least one course with a laboratory.

The courses for the minor must have the approval of the undergraduate faculty adviser.

The Graduate Program

The department offers the M.A. and Ph.D. degrees. For detailed information about the requirements for these degrees, including admissions, go to stat.berkeley.edu. The standard Ph.D. program in statistics provides a broad background in probability and in applications in other fields and in theoretical statistics. Additionally, building on the interdisciplinary strengths of the department, there are two specialized Designated Emphasis (D.E.) tracks: The D.E. in computational and genomic biology and the D.E. in communication, computation and statistics. Working towards a Ph.D. with a D.E. is similar to having a minor in a related discipline. In addition, the department, in conjunction with the School of Public Health, offers degrees in biostatistics through the Graduate Group in Bio-statistics. There are two biostatistics graduate programs: M.A. and Ph.D. These programs are appropriate for students who have either a strong mathematical and statistical background with an interest in biomedical sciences, or degrees in the biological sciences with a major interest in mathematics and statistics. For information, see “Biostatistics”; for course listings in Biostatistics, see the “Public Health” section in this catalog.

The M.A. program includes both students who are admitted directly into the department and students obtaining advanced degrees in other departments at Berkeley. Coursework is typically tailored to individual interests, and credit toward the degree can be earned by related coursework in other departments.
The Department of Statistics operates a consulting service in which advanced graduate students, under faculty direction and client cooperation, are available as consultants during specified hours. The service is associated with the course Statistics 272, which may be taken for credit. Consulting is free to members of the consulting process. However, for-profit organizations may be charged. Statistical advice can be sought at any stage of the research process. Those seeking statistical advice are encouraged to consult with a faculty member early in the research process. Refer to the Department of Statistics website to find out which faculty member is currently coordinating this service.

The Statistical Computing Facility

The Statistical Computing Facility (SCF) is a unit of the academic Department of Statistics, formally organized in 1986. In support of the University’s mission of teaching, research, and public service, the SCF provides computing, networking, and information resources to the community of students, faculty, and staff of the Department of Statistics, Biostatistics Graduate Group, and the School of Public Health, and the Econometrics Laboratory of the Department of Economics.

Lower Division Courses

Only one lower division statistics course may be taken for credit.


20. Introduction to Probability and Statistics. (4) Students who have taken 2X, 5, 21, 21X, or 25 will receive no credit for 20. Three hours of lecture and two hours of laboratory per week. Prerequisites: One semester of calculus. For students with mathematical background who wish to acquire basic concepts. Relative frequencies, discrete probability, random variables, expectation. Testing hypotheses. Estimation. Illustrations from various fields. (F,SP)


39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

84. Sophomore Seminar. (1-2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week per unit for eight weeks. Three hours of seminar per week per unit for five weeks. Seven hours of seminar per week for one week. Students will not receive credit for 84 after passing 20. Three hours of seminar per week. Prerequisites: Consent of instructor. This course provides an introduction to statistical and computational methods for the analysis of biological and genomic data. Statistical topics, introduction to bioinformatics, biological and graphical summaries of data; basic notions in probability; loss-based estimation (e.g., least-squares regression, maximum likelihood estimation); model selection; multiple hypothesis testing; Markov chains; hidden Markov models, resampling; and simulation of biological questions considered include—but are not limited to—modeling meiosis; genetic mapping; nucleotide and protein-sequence analysis; molecular evolution; computational gene finding; RNA, DNA, and protein experiments. The course also introduces statistical computing resources for the analysis of biological data, with emphasis on the R language and environment (project.r-project.org) and bioconductor packages (bioconductor.org). In addition, the course introduces basic notions in genetics and molecular biology and involves the critical reading of articles related to statistical analyses in the biological and medical sciences. Also listed as Public Health C143. (SP) Dudoit

150. Stochastic Processes. (3) Three hours of lecture per week. Prerequisites: 101 or 103 or 134. Random walks, discrete time Markov chains, Poisson processes. Further topics such as: continuous time Markov chains, queueing theory, point processes, branching processes, renewal theory, stationary processes, Gaussian processes. (SP)

151A-151B. Linear Modelling: Theory and Applications. (4,4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 102 or 135. 133 recommended. A coordinated treatment of general linear models and their application. Linear regression, analysis of variance and covariance, random effects, design and analysis of experiments, quality control, measurement error, log-linear models for discrete multivariate data, model selection, robustness, graphical techniques, and computer use. (SP)

152. Sampling Surveys. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 101 or 134, 133 and 135 recommended. Theory and practice of sampling from finite populations. Simple random, stratified, cluster, and double sampling. Sampling with unequal probabilities. Properties of various estimators including ratio, regression, and difference estimators. Error estimation for complex samples.

153. Introduction to Time Series. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 101 or 134, 133 and 135 recommended. Theory and practice of sampling from finite populations. Simple random, stratified, cluster, and double sampling. Sampling with unequal probabilities. Properties of various estimators including ratio, regression, and difference estimators. Error estimation for complex samples.

157. Seminar on Topics in Probability and Statistics. (3) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. Prerequisites: Math 53 and 54 and consent of instructor. Substantial student participation required. The topics to be covered each semester that the course may be offered will be announced by the middle of the preceding semester; see departmental bulletins.

H195. Special Study for Honors Candidates. (1-4) Course may be repeated for credit. (F,SP)

197. Field Study in Statistics. (1-3) Course may be repeated for credit. Enrollment is restricted; see the ‘Introduction to Courses and Curricula’ section of this catalog. One to three hours of fieldwork per week. Must be taken on a passed/not passed basis. Supervised experience relevant to specific aspects of statistics in off-campus settings. Individual and/or group meetings with faculty. (F,SP)

198. Directed Study for Undergraduates. (1-3) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Special tutorial or seminar on selected topics. (F,SP)
199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Must be taken on a passed/not passed basis. (F,SP) Staff

Graduate Courses

200A-200B. Introduction to Probability and Statistics at an Advanced Level. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Two years of calculus and one semester of linear algebra. Probability spaces, random variables, distributions in probability and statistics, central limit theorem, random processes, transformations involving random variables, estimation, confidence intervals, hypothesis testing, linear models, large sample theory, categorical models, decision theory. (F,SP)

204. Probability for Applications. (Students will receive no credit for 204 after taking 205A-205B.) Three hours of lecture per week. A treatment of characteristics and techniques most commonly found in the applications of probability: Gaussian and Poisson processes, limit theorems, large deviation principles, information, Markov chains and Markov chain Monte Carlo, martingales, Brownian motion and diffusion. (F, Evans)

C205A. Probability Theory. (Four) Three hours of lecture per week. Some knowledge of real analysis and metric spaces, including compactness, Riemann integral. Knowledge of Lebesgue integral and/or elementary probability is helpful but not essential, given otherwise strong mathematical background. Measure theory concepts needed for probability: expectation, distributions. Laws of large numbers and central limit theorems. Random variables, characteristic function methods. Conditional expectations; martingales and theory convergence. Markov chains. Stationary processes. Also listed as Mathematics C218B. Staff

C205B. Probability Theory. (Four) Three hours of lecture per week. Prerequisites: Some knowledge of real analysis and metric spaces, including compactness, Riemann integral. Knowledge of Lebesgue integral and/or elementary probability is helpful but not essential, given otherwise strong mathematical background. Measure theory concepts needed for probability: expectation, distributions. Laws of large numbers and central limit theorems. Random variables, characteristic function methods. Conditional expectations; martingales and theory convergence. Markov chains. Stationary processes.

C206A. Stochastic Processes. (Three) Course may be repeated for credit with a different instructor. Three hours of lecture per week. The content of this course changes from year to year. Course topics will be selected from the general theory of processes, sample function properties, weak convergence, Brownian motion, diffusions, Levy processes, Markov processes, martingales, Gaussian processes, and further topics. (F,SP)

C206B. Stochastic Processes. (Three) Course may be repeated for credit with a different instructor. Three hours of lecture per week. The content of this course changes from year to year. Course topics will be selected from the general theory of processes, sample function properties, weak convergence, Brownian motion, diffusions, Levy processes, Markov processes, martingales, Gaussian processes, and further topics. Also listed as Mathematics C223A. (F,SP) Staff

C206B. Stochastic Processes. (Three) Course may be repeated for credit with a different instructor. Three hours of lecture per week. The content of this course changes from year to year. Course topics will be selected from the general theory of processes, sample function properties, weak convergence, Brownian motion, diffusions, Levy processes, Markov processes, martingales, Gaussian processes, and further topics. Also listed as Mathematics C223A. (F,SP) Staff

210A-210B. Theoretical Statistics. (4,4) Three hours of lecture per week. Prerequisites: A year of upper division probability and statistics; a course in linear algebra. A survey of mathematical statistics: in particular both small and large sample theorems of hypothesis testing, point estimation, and confidence intervals with applications to topics, such as exponential families, univariate and multivariate linear models and inference. (F,SP)

212A. Topics in Theoretical Statistics. (Three) Course may be repeated for credit with different instructor. Three hours of lecture per week. Prerequisites: 210 or 205 and 215. This course introduces the student to topics of current research interest in theoretical statistics. Typical topics, which change from year to year, include the following: parametric, semiparametric and nonparametric modeling; time series and survival analysis; model selection; empirical and point processes; asymptotic behavior of bootstrap, stochastic search and Monte Carlo integration; convergence of experiments; minimum distance methods.

215A-215B. Statistical Models: Theory and Application. (4,4) Three hours of lecture and two hours of laboratory per week. Prerequisites: A year of upper division probability and statistics. Data types and structures. Model formulation, fitting and validation. The principal models. Planning and design. Difficulties that arise. Usage of statistical computer packages. Presentation of conclusions. (F,SP)

230A. Linear Models. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Matrix algebra, a year of calculus, two semesters of upper division or graduate probability and statistics. Theory of least squares estimation, interval estimation, and tests under the general linear fixed effects model with normally distributed errors. Large sample theory for non-normal linear models. Two and higher way layouts, residual analysis and/or model diagnostics. Robust alternatives to least squares.

232. Experimental Design. (F) Three hours of lecture and two hours of laboratory per week. Prerequisites: 200B or equivalent. Randomization, blocking, factorial design, confounding, fractional replication, response surface methodology, optimal design. Applications.

240. Nonparametric and Robust Methods. (Four) Three hours of lecture and two hours of laboratory per week. Prerequisites: A year of upper division probability and statistics. Theory of least squares estimation, interval estimation, and tests under the general linear fixed effects model with normally distributed errors. Large sample theory for non-normal linear models. Two and higher way layouts, residual analysis and/or model diagnostics. Robust alternatives to least squares.

C218A. Topics in Statistical Learning. (Three) Three hours of lecture per week. Prerequisites: Linear algebra, calculus, basic probability, and statistics. Recommended Computer Science 28B. Classification and regression, logistic regression and decision trees, support vector machines, clustering, hidden Markov models, and state space models, Markov properties, and recursive algorithms for general probabilitistic inference nonparametric methods including decision trees, kernal methods, neural networks, and wavelets. Ensemble methods. Also listed as Computer Science C281A. (F) Bartlett, Jordan, Wainwright

C218D. Stochastic Methods: Survival Analysis and Causality. (Three) Three hours of lecture and two hours of laboratory per week. Prerequisites: 200A-200B (may be taken concurrently). This course focuses on statistical methods for discrete data collected in public health, clinical and biological studies. Lectures topics include proportions and counts, contingency tables, logistic regression models, Poisson regression and log-linear models, models for polytomous data and models for Cox and related survival models. Computing techniques, numerical methods, simulation and general implementation of statistical analysis techniques with emphasis on data applications. Also listed as Public Health C240A. Offered odd-numbered years. (F) Staff

C245A. Biostatistical Methods: Advanced Categorical Data Analysis. (Four) Three hours of lecture and two hours of laboratory per week. Prerequisites: 200A (may be taken concurrently). This course focuses on statistical methods for discrete data collected in public health, clinical and biological studies. Lectures topics include proportions and counts, contingency tables, logistic regression models, Poisson regression and log-linear models, models for polytomous data and models for Cox and related survival models. Computing techniques, numerical methods, simulation and general implementation of statistical analysis techniques with emphasis on data applications. Also listed as Public Health C240B. Offered odd-numbered years. (SP) van der Laan

C245D. Biostatistical Methods: Applications of Statistical Learning to Genomics and Molecular Biology. (Four) Three hours of lecture and two hours of laboratory per week. Prerequisites: 200A-200B (may be taken concurrently) or consent of instructor. This course provides an introduction to computational statistics, with emphasis on statistical methods and techniques that are used to address high-dimensional inference problems in biology and medicine. Topics include: numerical and graphical data summaries, loss-based estimation (regression, classification, density estimation),EM algorithm, clustering, mixture models, hidden Markov models, and state space models, Markov properties, and recursive algorithms for general probabilitistic inference nonparametric methods including decision trees, kernal methods, neural networks, and wavelets. Ensemble methods. Also listed as Public Health C240C. Offered every-numbered years. (F) Dudik

C250D. Biostatistical Methods: Applications of Statistical Learning to Genomics and Molecular Biology. (Four) Three hours of lecture and two hours of laboratory per week. Prerequisites: 200A-200B (may be taken concurrently) or consent of instructor. This course surveys applications of statistical learning to genomics and molecular biology. Biological questions of interest include: modeling miogenesis, genetic mapping, nucleotide and protein sequence analysis, DNA microarray experiments, and computational genomics. Related statistical topics include: numerical and graphical data summaries, statistical processes, experimental design, loss-based estimation, multiple hypothesis testing, resampling, and simulation studies. The

prefix=language course for business majors
C prefix=course cross-listed course
h prefix=honors course
R prefix=course satisfies R&Q requirement
AC suffix=course satisfies American Cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

Statistics / 491
course discusses statistical computing resources for the analysis of biological data, with emphasis on the R language and environment (www.r-project.org) and Bioconductor (www.bioconductor.org). It also provides an introduction to basic notions in genetics and molecular biology and involves the critical reading of articles related to statistical analyses in the biological and medical sciences. Also listed as Public Health C240D. Offered every even-numbered years. (SP) Dudoit

246. Statistical Genetics. (4) Three hours of lecture and two hours of laboratory per week. Modelling meiosis, linkage mapping, pedigree analysis, genetic epidemiology, Clone libraries, physical mapping of chromosomes. Radiation hybrid mapping. DNA and protein sequence analysis, molecular evolution, sequence alignment, database searching. Analysis of microarray gene expression data. (SP)

C247C. Longitudinal Data Analysis. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: Public Health 142, 145, 241 or equivalent courses in basic statistics, linear and logistic regression. The course covers the statistical issues surrounding estimation of effects using data on subjects followed through time. The course emphasizes a regression model approach and discusses disease incidence modeling and both continuous outcome data/linear and non-linear extensions to non-linear models (e.g., logistic and Poisson). The primary focus is from the analysis side, but mathematical intuition behind the procedures will also be discussed. The statistical material includes survival analysis, linear models, logistic and Poisson regression, and matrix algebra for statistics. The course will conclude with an introduction to recently developed causal regression techniques (e.g., structural nested models). Time permitting, serially correlated data on ecological units will also be discussed. Also listed as Public Health C242C. Offered even-numbered years. (SP)

248. Analysis of Time Series. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 102 or equivalent. Frequency-based techniques of time series analysis, spectral theory, linear filters, estimation of spectra, estimation of transfer functions, design, system identification, vector-valued stationary processes, model building.

C249A. Censored Longitudinal Data and Causality. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 200A-200B, Public Health 240B, or consent of instructor. This course examines optimal robust methods for statistical inference concerning causal and non-causal parameters based on longitudinal data in the presence of informative censoring and informative treatment. Topics to be covered will include censored data regression models, marginal structural models, and causal effect estimators. Also listed as Psychology C246A. Offered even-numbered years. (SP) van der Laan

C249C. Multiple Testing and Loss Function Based Estimation: Applications in Biological Sciences. (3) Three hours of lecture per week. Prerequisites: Public Health 240D or consent of instructor. Statistical computing-intensive methods have become an integral part of the analysis of cross-sectional and longitudinal studies involving the collection of genomic data. These methods have been used for gene expression, single nucleotide polymorphisms, and comparative genomic hybridization measurements across the whole genome. Some of these data structures are extremely high dimensional and the characteristics (parameters of interest) of the population are usually unknown, and outcomes such as survival are often subject to censoring. In addition, one often aims to learn and test many univariate characteristics simultaneously (e.g., regression coefficients for each gene). This course will present: (1) a unified loss-function-based approach to learning from the data such characteristics which rely on general cross-validation methodology to select among candidate estimators; (2) resampling-based methods controlling type I error; and (3) clustering methods embedded into a statistical framework. Also listed as Public Health C246C. (F) van der Laan

251. Stochastic Analysis with Applications to Mathematical Finance. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. The essentials of stochastic analysis, particularly those most relevant to financial engineering, will be surveyed: Brownian motion, stochastic integrals, Ito’s formula, representation of martingales, Girsanov theorem, stochastic differential equations, and diffusion processes. Examples will be taken from the Black-Scholes-Merton theory of pricing and hedging contingent claims such as foreign currency deriva-

260. Topics in Probability and Statistics. (3) Course may be repeated for credit. Three hours of lecture per week. Special topics in probability and statistics offered according to student demand and faculty availability.

C261. Quantitative/Statistical Research Methods in Social Sciences. (3) Two hours of lecture per week. Prerequisites: Consent of instructor. Selected topics in quantitative/statistical methods of research in the social sciences and particularly in sociology. Possible topics include analysis of qualitative/quantitative data; loglinear models and latent-structure analysis; the analysis of cross-classified data having ordered and unordered categories; measure, models, and graphical displays in cross-classified data; correspondence analysis, association analysis, and related methods of data analysis. Also listed as Sociology C271D.

272. Statistical Consulting. (3) Course may be repeated for credit. Two hours of session per week and individual meetings as necessary. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Some coursework in applied statistics and permission of instructor. To be taken concurrently with a graduate student in the depas consulting for consulting service. Participants will work on problems arising in the service and will discuss general ways of handling such problems. There will be working sessions with researchers in substantive fields and occasional lectures on consulting. (F,SP)

278B. Statistics Research Seminar. (1-4) Course may be repeated for credit. Two or more hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Some coursework in applied statistics and permission of instructor. To be taken concurrently with a graduate student in the department consulting for consulting service. Participants will work on problems arising in the service and will discuss general ways of handling such problems. There will be working sessions with researchers in substantive fields and occasional lectures on consulting. (F,SP)

296. Resources for Statistical Computing. (1) One hour of lecture per week and a small amount of hands on work. Statistical computing plays a central role in research and in instruction at all levels of the department's curriculum. This course provides first year graduate students with an introduction to the Statistical Computing Facility, including the basis of the UNIX system and commonly used packages, thus enabling them to use it effectively in their own courses and research and as teaching assistants in undergraduate courses. (F)

299. Individual Study for Graduate Students. (1-12) Course may be repeated for credit. Prerequisites: Consent of instructor. Special tutorial or seminar on selected topics. (F,SP)

300. Individual Study Leading to Higher Degrees. (2-12) Course may be repeated for credit. (F,SP)

601. Individual Study for Master’s Candidates. (1-8) Course may be repeated for a maximum of 16 units. By appointment. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the graduate adviser, intended to provide an opportunity for qualified students to prepare themselves for the master’s comprehensive examinations. Units may not be used to meet either unit or residence requirements for a master’s degree. (F,SP)

602. Individual Study for Doctoral Candidates. (1-8) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: One year of full-time graduate study and permission of the graduate adviser. Individual study in consultation with the graduate adviser, intended to provide an opportunity for qualified students to prepare themselves for certain examinations required of candidates for the Ph.D. degree. (F,SP) Staff

Professional Courses

300. Professional Preparation: Teaching of Probability and Statistics. (2-4) Course may be repeated for credit. One or two hours of lecture and two to four hours of laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and appointment as a graduate student instructor. Discussion, problem review and development, guidance of laboratory classes, course development, supervised practice teaching. (F,SP)

Technology and Leadership Studies (College of Engineering)

Program Office: 230 Bechtel Engineering Center #1708, (510) 642-8790, y.brown@berkeley.edu
Director: iklash Sidhu, Ph.D., sidhu@berkeley.edu

Overview

A newly established program, Technology and Leadership Studies (TLS) seeks to develop leaders who will create and drive the solutions to today’s most pressing problems. TLS is the administrative home to the Center of Entrepreneurship and Technology (CET); the Management of Technology Program (MOT), a joint program with the Haas School of Business; the Technical Communications Program; the Graduate Group in Applied Science and Technology (AS&T); and the Engineering Science Program.

Coursework

Broadly, TLS offers undergraduate, graduate, and executive education courses in technology management, innovation, entrepreneurship, communication, and ethics.

Undergraduate

TLS undergraduate programs comprise the coursework offered by the Center for Entrepreneurship and Technology, Technical Communications, and Engineering Science. Center for Entrepreneurship and Technology (CET) courses are designed to teach key concepts of entrepreneurship including opportunity recognition, business model development, operational planning, leadership, marketing strategies, and financing alternatives. At the center of CET teaching is strong industry participation. CET draws on a broad network to bring guest lecturers and executive presence to TLS courses. Undergraduate courses are IEOR 190A, Engineering Entrepreneurship, and E198, The A. Richard Newton Global Technology Leaders Lecture Series. A certificate is awarded upon completion of the course sequence.

The Technical Communication Program serves the broad interests of the campus engineering community and includes two courses: Engineering 190 and Engineering 140, designed to teach students to present technical and non-technical material effectively to a variety of audiences. The Engineering Science Program is an undergraduate multi-departmental and interdisciplinary program that provides a means for students to acquire knowledge of engineering methods, while pursuing interests in areas of natural science. The options offered within the curriculum prepare students for advanced study in engineering, science, bio-
Graduate
The Management of Technology Program (MOT) is at the core of the graduate TLS offerings. MOT is an interdisciplinary research and teaching program co-sponsored by the College of Engineering and the Haas School of Business. MOT’s focus is the process of bringing high technology products to the market. The largest component of the MOT is the certificate program. MOT includes courses from several schools and departments: Haas School of Business, Mechanical Engineering, Civil Engineering, Industrial Engineering and Operations Research, Electrical Engineering and Computer Science, Material Science, Chemical Engineering, Energy Resources, and the School of Information. Other MOT programs include the Mayfield Internship, which sponsors students each summer to intern in well-funded Bay Area start-up businesses, and the MOT China Fellowship, which sponsors students each winter to visit businesses, government agencies, and universities in China.

The Graduate Group in Applied Science and Technology (AS&T) focuses on studies involving the application of physical and mathematical techniques to the problems and findings of various areas in the physical and life sciences. Major areas of emphasis are in applied physics, engineering sciences, and mathematical sciences. AS&T offers students the option of crossing disciplinary lines in developing graduate degree programs. AS&T is a Ph.D. program; however, students may also pursue a master of science degree by completing the additional requirements while pursing the Ph.D.

Executive Education
Executive education is one of the most recent initiatives of TLS and is still in its developmental stages.

Programs
TLS relies heavily upon a learning-by-doing style of instruction that translates into several programs that encourage the Berkeley and global communities to get hands-on experience in technology and leadership. These programs include the Venture Lab, the Executive in Residence Program, the MOT-CRC China Program, and several competitions, including the Technology Breakthrough Competition, the CleanTech Competition, and the Venture Lab Prize Competition. TLS is also working on programs to recognize individual achievements and emerging areas within the physical and life sciences. Major areas of emphasis are in applied physics, engineering sciences, and mathematical sciences. AS&T offers students the option of crossing disciplinary lines in developing graduate degree programs. AS&T is a Ph.D. program; however, students may also pursue a master of science degree by completing the additional requirements while pursuing the Ph.D.

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ments outside the major, students are encouraged to select complementary courses in dramatic literature, culture and performance, visual arts, and music in a wide range of departments in the College of Letters and Science, particularly in its Division of Arts and Humanities.

The Majors

The department’s major programs (theater and performance studies and dance and performance studies) are based on the study of theater and dance and the various aspects of their production. Students are encouraged to pursue their particular interests in the disciplines of design, theatrical performance, performance studies (the literature, history, cultures, and theory of performance), criticism, directing, technical production, and dramatic writing. All majors begin with a core of both practical and critical work; students then select an area of concentration (i.e., performance studies, design, acting, technical production, choreography) and shape their programs in consultation with the faculty adviser. In the senior year, all majors may undertake critical or performance projects or both as the culmination of their studies.

Major Requirements

Theater and Performance Studies:

Students should choose, in consultation with the faculty or staff adviser, an area of concentration from the upper division courses in the department. Sample programs are available in the departmental faculty or staff adviser’s office. Students should then select an area of concentration (i.e., performance studies, design, acting, technical production, choreography) and shape their programs in consultation with the faculty adviser. In the senior year, all majors may undertake critical or performance projects or both as the culmination of their studies.

Major Requirements

Theater and Performance Studies:

Students should choose, in consultation with the faculty or staff adviser, an area of concentration from the upper division courses in the department. Sample programs are available in the departmental faculty or staff adviser’s office.

Lower Division.

10, 25AC or 52AC, 26, and 60.

Upper Division.

Sample programs are available in the departmental faculty or staff adviser’s office. Students should choose, in consultation with the faculty adviser, an area of concentration (i.e., performance studies, design, acting, technical production, choreography) and shape their programs in consultation with the faculty adviser. In the senior year, all majors may undertake critical or performance projects or both as the culmination of their studies.

Dance and Performance Studies Minor

Students should choose, in consultation with the faculty or staff adviser, an area of concentration from the upper division dance courses in theater arts or from other departments. Sample programs are available in the departmental office.

Lower Division.

One course chosen from 10, 25AC, 26, 52AC, or 60.

Upper Division.

Five upper division theater arts courses (three of which must be taken at Berkeley) by advisement approval. Students must maintain a minimum GPA of 2.0 in the upper division units for the minor.

Dance and Performance Studies Minor

Students should choose, in consultation with the faculty or staff adviser, an area of concentration from the upper division dance courses in theater arts or from other departments. Sample programs are available in the departmental office.

Lower Division.

One course chosen from 25AC, 26, 40A, 40B, 52AC, African American Studies 26 or 60.

Upper Division.

Five upper division theater arts courses (three of which must be taken at Berkeley) by advisement approval and including one upper division dance technique course. Students must maintain a minimum GPA of 2.0 in the upper division units for the minor.

Rules for Passed/Not Passed

No letter-graded course in Theater, Dance, and Performance Studies offered in satisfaction of undergraduate major requirements may be taken on a passed/not passed basis.

Honors Program

Majors in the Department of Theater, Dance, and Performance Studies with an overall GPA of 3.3 in the University and in the major may, with the approval of the department, apply for admission to the Honors Program. Students should apply through a departmental major adviser no later than February 22 of their junior year. Students accepted in the Honors Program will include in their programs: H195A, an intensive study of problems of dramatic literature, performance studies, acting, playwriting, directing, dance, or design; and H195B, development of studies begun in H195A, either as a stage production or a written thesis.

Graduate Program

Core Faculty: Brandi Wilkins Catanese (Theater, Dance, and Performance Studies and African American Studies), Catherine M. Cole (Theater, Dance, and Performance Studies), Vasudha Dalmia (South and Southeast Asian Studies), Abigail De Kosnik (Theater, Dance, and Performance Studies and Berkeley Center for New Media), Peter Glazer (Theater, Dance, and Performance Studies), Mel Gordon (Theater, Dance, and Performance Studies), Mark Griffith (Theater, Dance, and Performance Studies and Classics), Yvonne Hardt (Theater, Dance, and Performance Studies), Shannon Jackson (Theater, Dance, and Performance Studies and Rhetoric), Laura Perez (Ethnic Studies), Miryam Sias (East Asian Languages and Culture, and Comparative Literature), Kaja Silverman (Rhetoric and Film Studies), Mary Ann Smart (Music), Shannon Steen (Theater, Dance, and Performance Studies and American Studies), Trinh Minh-ha (Gender and Women’s Studies and Rhetoric), Sophie Volfpp (Comparative Literature and East Asian Languages and Cultures), Alexei Yurchak (Anthropology).

Affiliated Faculty: Charles Briggs (Anthropology), Judith Butler (Rhetoric and Comparative Literature), Dru Dougerty (Spanish and Portuguese), Joe Goode (Theater, Dance, and Performance Studies), Anton Kaun (Film and Media Studies), John Lie (Sociology and Center for Korean Studies).

The Graduate Group in Performance Studies provides an interdisciplinary and individually crafted curriculum directed toward advanced studies in the humanities, performance, and theories of theater and performance throughout the world. The Ph.D. program is administered by an interdisciplinary graduate group composed of faculty from a wide range of related departments. Students in the Ph.D. program in performance studies conduct research in a diverse array of interdisciplinary methodologies on projects spanning the fields of theater and performance studies.

Lower Division Courses

R1A/B. Introduction to Dramatic Literature. (4/4)

Three hours of lecture/discussion per week. Prerequisites: Audit required. Formerly Dramatic Art 10. This is a theory and performance course that provides an overview of the actor’s creative process. Basic acting techniques are presented in conjunction with exercises, improvisation, and text work, designed to enhance concentration, imagination, vocal resonance, clarity of speech, self-confidence, and communication skills. (F,SP) Staff

11. Scene Study and Characterization. (3)

Six hours of studio sessions per week plus preparation and rehearsals to be arranged. Prerequisites: Audition required. Formerly Dramatic Art 11. In this course the emphasis is on the student’s studies’ shifts from the development of basic skills to the development of skills necessary to the character actor. Students develop characterization skills which lie outside their personal experience by performing characters who are not close to themselves in age or background. Students continue to employ the basic acting and vocal techniques introduced in 10. (F,SP) Staff

12. Speech and Vocal Communication Skills. (2)

Four hours of studio per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 12. The objective of this course is to foster the finest sound of spoken English through work on basic vocal relaxation techniques, breath, resonance, articulation, and projection practice. The International Phonetic Alphabet (IPA-narrow transcription) is used for purity and clarity of speech sounds. Also work on pitch, rate, quality, and inflection through a variety of material. (SP) Susel

24. Freshman Seminar. (1)

Course may be repeated for credit as topic varies. One hour of seminar per week. Section 1 to be graded on a letter-grade basis. Section 2 to be graded on a pass/not pass basis. Formerly Dramatic Art 24. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a small group of students in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semesters to semester. (F,SP)

25AC. The Drama of American Cultures: An Introduction to Our Theater. (4)

Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 25AC. This course provides an intro-
duction to theater through the study of values and issues fundamental to cultural identity, the comparison of selected cultural groups and their relationship to American society as a whole, and the study of drama as an instrument for understanding and expressing cultural identity. Theater of specific cultural groups to be included will be determined by the availability of live performers in the Bay Area. This course satisfies the American Cultures requirement. (F,SP)

26. Introduction to Performance Studies. (4) Three hours of lecture per week. Formerly Dramatic Art 26. This course introduces the critical terms and practices of the study of performance. Several key terms and important genres of artistic and social performance will be engaged; the course will draw critical and disciplinary methods from anthropological, historical, from the theory of dance and theater, from literary and cultural theory. Critical and theoretical concepts will be used to analyze a wide range of live and recorded performances, as well as performance texts. (F,SP) Staff

39. Freshman/Sophomore Seminar. (1-3) Course may be repeated for credit as topic varies. One to three hours of seminar per week. Prerequisites: Priority given to freshmen and sophomores. Formerly Dramatic Art 39. Freshman and sophomore seminars offer students the opportunity to analyze an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from semester to department and from semester to semester. (F,SP)

40A-40B. Beginning Modern Dance Technique. (2,2) Course may be repeated for credit. Six hours of studio per week. Formerly Audition and consent of instructor. Formerly Dramatic Art 40A. Study in elementary principles and basic locomotor patterns utilizing the body and extremities as a totality. (F,SP)

52AC. Reflections of Gender, Culture, and Ethnicity in American Dance. (3) Three hours of lecture per week. Formerly Dramatic Art 52AC. Working with the premise that the context, content, and form of any dance event serve as a window on culture, we focus on dance associated with at least three of the following groups: African Americans, Asian Americans, indigenous peoples of the U.S., Chicano/Latinos, and European Americans. We will look at traditional dance events as well as transcultural currents in American dance. This course satisfies the American Cultures requirement. (F,SP) Johnson

60. Stagecraft. (3-4) Two hours of lecture per week and three hours of laboratory per semester. Prerequisites: Enrollment via Tele-BEARS, consent of instructor given after evaluation during first week of class. Formerly Dramatic Art 60. This course is a practical introduction to the theories, approaches, and applications of construction techniques for the scenic environment, and includes attention to such aspects of production as scenery, lights, sound, costumes, and stage management. Special emphasis will be placed on stage machinery and rigging, scenery building, scenery painting, and stage properties. The course involves a laboratory dimension. Students will work on departmental productions. (F,SP)

66. Special Topics: Theater Arts. (1-4) Course may be repeated for credit. Number of units varies depending on specific course format and requirements. One hour of lecture or three hours of laboratory per week per unit. Prerequisites: Consent of instructor. Formerly Dramatic Art 66. Topics vary from semester to semester and have included The Power of Music and Poetry in the Theater; Modern Drama and Theater, 1940 to the Present; Theaters, Tricksters, and Cultural Exchange; Art as Social Action; and the Invisible World (Process Seminar). (F,SP) Staff

84. Sophomore Seminar. (1,2) Course may be repeated for credit as topic varies. One hour of seminar per week per unit for 15 weeks. One and one-half hours of seminar per week per unit for 10 weeks. Two hours of seminar per week for unit for eight weeks. Three hours of seminar per week per unit for five weeks. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a lettergrade basis. Prerequisites: At discretion of instructor. Formerly Dramatic Art 84. Topics vary from semester to semester and have included The Power of Music and Poetry in the Theater; Modern Drama and Theater, 1940 to the Present; Theaters, Tricksters, and Cultural Exchange; Art as Social Action; and the Invisible World (Process Seminar). (F,SP) Staff

98. Directed Group Study. (5-5) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. One-half to five hours of directed group study per week. Must be taken on a passed/not passed basis. Formerly Dramatic Art 98. Group study of a topic not included in the regular departmental curriculum. Topics may be initiated by students. (F,SP)

99. Independent Study. (1-5) Course may be repeated for credit. Enrollment is restricted; see the "Introduction to Courses and Curricula" section of this catalog. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Open to sophomore students with an overall GPA of 3.3. Formerly Dramatic Art 99. Study of a topic not included in the regular departmental curriculum. (F,SP)

Upper Division Courses

C107. Plays of Ibsen. (4) Three hours of lecture/discussion per week. Formerly Dramatic Art C107. Reading and discussions in English. Also listed as Scandinavian C107. (F,SP) Staff

C108. Strindberg. (4) Three hours of lecture per week. Formerly Dramatic Art C108. Reading and discussion in English. Also listed as Scandinavian C108. (F,SP) Staff

110A-110B. Intermediate Acting. (3,3) Course may be repeated for credit. Six hours of studio per week. Prerequisites: Audition, one year of undergraduate work in acting, or consent of instructor. (F,SP)

111. Advanced Acting. (3) Course may be repeated for credit. Six hours of sessions per week plus preparation and rehearsal time. Prerequisites: Audition, two years of undergraduate work in acting or consent of instructor. (F,SP)

114. Performance Workshop. (3) Course may be repeated for credit. Six hours of sessions, preparation, and rehearsal per week. Prerequisites: Two years of undergraduate work in acting or dance or consent of instructor. Formerly Dramatic Art 114. Workshop involving student actors, directors, playwrights, and spoken-word performers in collaborative development of new performance; topics include cross-disciplinary arts, solo performance, language, and movement. (F,SP) Staff

115. Advanced Acting: Company Class. (3) Six hours of sessions per week, plus preparation and rehearsals. Prerequisites: 110A-110B or 111 or consent of instructor. Formerly Dramatic Art 115. Intensive group study, rehearsal, and performance of a play or selected dramatic pieces. (F,SP) Staff

119. Performance Theory. (4) Course may be repeated for credit. Four hours of lecture per week. Formerly Dramatic Art 119. An examination of a theoretical topic or perspective on performance, with specific attention to the interface between the theories of performance, dance, music, and film, and the non-theatrical modes of performance; may involve visiting artists. Topics vary from semester to semester. (F,SP) Staff

121. Performance and Culture. (4) Course may be repeated for credit. Three hours of lecture per week. Formerly Dramatic Art 121. An examination of performance as an aspect of cultural production, ranging from everyday-life enactment to more formal or aesthetic activities associated with "artistic" production and involves visiting artists. Specific attention to the methods of ethnography, cultural studies, and intercultural performance analysis. Topics vary from semester to semester. (F,SP) Staff

122. African Theater and Performance. (4) Three hours of lecture per week. African performance includes a wide range of vibrant forms: from scripted theater, dance, drama, traditions, storytelling, masquerading, and ritual. Using source materials that are neither "traditional" nor "modern," "African" nor "European," but a complex amalgamation of African, European performances. These performances defy these limits but nevertheless tenacious dichotomies. In the performing arts, one sees the resilience and tenacity of African cultural forms as responses of memory, mourning, embodiment, visibility, and potent forums for political resistance. (F,SP) Cole

125. Performance and History. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Formerly Dramatic Art 125. An examination of the historical conditions of performance, either given in a historical period or comparatively, with specific attention to the relationship between methods of historical studies and performance; may involve visiting artists. Topics vary from semester to semester. (F,SP) Staff

126. Performance Literatures. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Formerly Dramatic Art 126. An examination of the formal, ideological, and cultural dynamics of a specific performance with specific attention to the relationship between methods of literary studies and performance; may involve visiting artists. Topics vary from semester to semester. (F,SP) Staff

C131A. African American Plays from 1858 to 1959. (4) Three hours of lecture per week. Formerly Dramatic Art C131A. Historical survey of plays by African American writers and the portrayal of the black experience in theatre. Emphasis on predominant themes, structural tendencies, socio-historical context. Also listed as African American Studies C131A. (SP)

C131B. Contemporary African American Drama. (4) Four hours of lecture per week. Formerly Dramatic Art C131B. Survey of contemporary plays by African American writers and the portrayal of the black experience in American Theatre. Emphasis on predominant themes, structural tendencies, socio-historical context. Also listed as African American Studies C131B. (SP)

139. Playwriting. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Formerly 139A-139B. Practice in the fundamentals of dramatic composition. Group readings and discussion of written work. (F

141A-141B. Intermediate Modern Dance Technique. (2,2) Course may be repeated for credit. Six hours of studio per week. Prerequisites: 40A-40B, intermediate level of Ibsen's major plays. Readings and discussion in English. Also listed as Scandinavian C108. (F,SP) Staff

142A-142B. Modern Dance Technique Advanced I. (2,2) Course may be repeated for credit. Seven and one-half hours of studio per week. Prerequisites: 141A-141B, audition, or consent of instructor. Formerly Dramatic Art 142A. Refinement of movement techniques and qualitative analysis of movement with regard to rhythm, dynamics, spatial relationships, and time. (F,SP)

143A-143B. Modern Dance Technique Advanced II. (2,2) Course may be repeated for credit. Seven and one-half hours of studio per week. Prerequisites: 142A-142B, audition, or consent of instructor. Formerly Dramatic Art 143A. Exploration of existing styles and forms of movement and their musical relationship, using both individual and group awareness. (F,SP)

144. Sources of Movement. (3) Four and one-half hours of lecture/studio per week. Prerequisites: 40A-40B, or consent of instructor. Formerly Dramatic Art 144. Survey of movement types and their application as a means of communication in the theatre. Use of basic technical fundamentals as a means of extending natural movement in rhythm, energy, and space with emphasis on style and qualitative analysis. (SP)
145. Music Resources for Performance. (3) Three hours of lecture/studio per week. Prerequisites: 144 or consent of instructor. Formerly Dramatic Art 145. This course is an introduction to the music of dance and performance. Students will study historical European precedents and current trends in theatrical/dance music, we will examine the work of composers for early royal theater like Rameau, the music of 19th-century ballet masterpieces like Tchaikovsky: look at pre-electronic composers like Varese, Berio, and Stockhausen; shift into the avant-garde with Cage; and study contemporary composers like Anderson. Discussions will be based on lectures and readings. An important aspect of this course is the practical experience and analysis of sonic experimentation in performance. (F)

146A-146B. Choreography. (1-3; 1-3) Course may be repeated for credit. Four and one-half hours of lecture/studio per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 148. Study and analysis of stage movement through non-verbal approaches. (F)

149A-149B. Repertory and Production. (5-3; 5-3) Course may be repeated for credit. Variable studio hours. Prerequisites: Consent of instructor. Formerly Dramatic Art 151A. Analysis of theories of form and structure and their practical application in relation to content. (F) Staff

148. Introduction to Movement Improvisation. (1) Three hours of studio per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Formerly Dramatic Art 148. Study and analysis of stage movement through non-verbal approaches. (F)

151B. Theater History. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 151B. A chronological survey of Western theater from 1800 to the present, this course begins with the dismantling of Neoclassical thought in the European theater and the rise of avant-garde and popular forms. Rapidly changing social conditions, cultural tastes, and technological advances in the 19th and 20th centuries are studied in tandem with the development of theatrical productions and movements, playmaking, and acting styles. (F,SP)

153A. History of Western Dance. (3) Three hours of lecture per week. Formerly Dramatic Art 153A. The history of theatrical dance from its origins in ritual and popular culture through the 19th century. Topics include: comedy, burlesque, ballets burlesques of the 19th and 20th centuries, and modern and postmodern dance and performance. (F,SP)

153B. Changing Forms in 20th-Century Dance. (3) Three hours of lecture per week. Formerly Dramatic Art 153B. A chronological study of a large selection of works by major choreographers. One hour of lecture or three hours of dance laboratory per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 153B. A chronological study of works by major choreographers. We emphasize how dance reflects and affects political climate, social values, religious beliefs, and cultural constructions of gender by examining a variety of dance forms, movement vocabularies, and styles. (SP) Johnson

162. Fundamentals of Stage Directing. (3) Four hours of lecture/discussion per week plus preparation and rehearsals to be arranged. Prerequisites: 10 or 120; junior standing and consent of instructor. Formerly Dramatic Art 162. In-depth study of principles of stage composition, blocking, and analysis of dramatic text for the director. (SP)

163. Stage Directing. (3) Four hours of lecture/discussion per week. Prerequisites: 162 or consent of instructor. Formerly Dramatic Art 163. Study of principles and practice of stage directing. (F,SP) Staff

166. Special Topics: Theatre Arts. (1-4) Course may be repeated for credit. Number of units will vary depending on specific course format and requirements. One hour of lecture/studio per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 166. Topics vary from semester to semester and have included: The Music of Musicals and Broadway, 1840 to the Present; Theater, Tricksters, and Cultural Exchange; Art as Social Action; and The Invisible World (Process Seminar). (F,SP) Staff

167. Technical Theater: Performance Practice. (1-3) Course may be repeated in another field at the beginning level. Three hours of laboratory per unit per week. Hours to be arranged. Prerequisites: 60 or consent of instructor. Participation in technical theatre practice associated with department theatre and dance productions to include technical run crew for live performance in one of the following: lighting, sound, video, properties, costumes, make-up, scenery, deck, and rail. (F,SP) Mattson

168. Technical Theater: Shop Practice. (1-3) Course may be repeated in another field at the beginning level. Three hours of laboratory per unit per week. Hours to be arranged. Prerequisites: 60 or consent of instructor. Participation in technical theatre practice associated with department theatre and dance productions to include workshop activities (fabrication, treatment, and installation) in one or more of the following: costumes, hair, makeup, scenery, properties, lighting, video, and sound for live performance. (F,SP) Mattson

169. Advanced Technical Theater Practice. (1-3) Course may be repeated in another field or to fulfill additional advanced opportunities in the same design field. Three hours of laboratory per unit per week. Hours to be arranged. Prerequisites: 167, 168, 176, 179, or consent of instructor. Participation in advanced technical theatre practice associated with department theatre and dance productions to include technical run crew for live performance in one of the following: lighting, sound, video, properties, costumes, make-up, scenery, deck, rail, or advanced application of workshop activities (fabrication, treatment, and installation) in one or more of the following: costumes, hair, make-up, scenery, properties, lighting, video, and sound for live performance. Intended for a student who has experience with research and/or participation in the organization of theater practice and is training in advanced techniques and applications and/or assuming additional responsibilities in relation to production. (F,SP) Mattson

170. Theatre Laboratory. (1-3) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Formerly Dramatic Art 170. Non-performing participation in the University Theatre to include: stage managements; crew assistance in lighting, sound, properties, costumes, make-up, and backstage; technical assistance in scene or costume shop. (F,SP)

171. Theatre Performance. (1) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Formerly Dramatic Art 171. Practice in acting and/or dance in Dramatic Art productions. (F,SP)

172. Advanced Production Study. (4-6) Course may be repeated for credit. Number of units will vary depending on specific course format and requirements. Three to nine hours of laboratory per week. Prerequisites: Consent of instructor; restricted enrollment of 18. Formerly Dramatic Art 172A. Introduction to the theatrical lighting, including apparatus, practical application through dramatic art productions. (F,SP)

176. Applied Theatrical Design. (1-3) Course may be repeated for credit. Three hours of studio per week per unit. Prerequisites: 173A or 173B, 174A or 174B, 175A or 175B, or consent of instructor. Formerly Dramatic Art 176. Students of set, costume, and lighting design are provided experience, structure, and support in the practical application of design to the stage in departmental productions. Inter- action and team approach of the designers will be promoted from the earliest stages of conceptualization through the opening night and the run of the production(s). (F,SP) Staff

179. Supervised Theatrical Design. (1-3) Course may be repeated for credit. Three hours of studio per week per unit. Prerequisites: 173A or 173B, 174A or 174B, 175A or 175B, or consent of instructor. Formerly Dramatic Art 179. Supervised study of setting, costumes, properties, lighting, video, and sound for live performance. (F,SP) Staff

180. Theatrical Realization of Dance. (1-3) Course may be repeated for credit. Three hours of studio per week per unit. Prerequisites: 173A or 173B, 174A or 174B, 175A or 175B, or consent of instructor. Formerly Dramatic Art 180. This course relates choreography to theatrical presentation. Laboratory hours are spent in rehearsal, coaching sessions, and the performance of the dance concert. The course is taught by faculty choreographing the major dance production in the departmental season. (F,SP) Staff

181. Theatrical Realization of Dramatic Texts. (1-4) Course may be repeated for credit. Three hours of studio per week per unit. Prerequisites: Audition or consent of instructor. Formerly Dramatic Art 181. This course relates dramatic texts or choreography to the-atrical presentation. The lectures are based on the analysis of the work being presented. Laboratory hours are spent in attendance at rehearsal, coaching sessions, and the performance of the play or concert. The course will be taught by faculty involved in the major productions. (F,SP) Staff

C183B. Research-to-Performance Laboratory. (3) Three hours of lecture per week. Formerly Dramatic Art C183B. Development of scholarly material for theatrical presentation and enhancement of dramatic performance techniques through discussions, improvisations and readings of work conceived by the class and/or writers in other African American studies courses. All source material will be based on the research of scholars in the field of African American studies. Also listed as African American studies C143B.

C183C. Black Theatre Workshop. (3) Course may be repeated for credit. Three hours of lecture per week. Formerly Dramatic Art C183C. Study and production of a play by an African American. Students are trained in the production process and will be studied within its social and historical context. Students will be introduced to the various aspects of theatre production. Also listed as African American Studies C143C.

H195A. Honors Courses. (4) Hours to be arranged. Prerequisites: Honors status in the Department of Theatre, Dance, and Performance Studies. Theatre production projects also require 60 and 162; dance production projects also require 60 and 146B. Formerly Dramatic Art H195A. Independence study and conferences with faculty sponsor leading to preparation of a major research paper on a single aspect of theater, dance, or performance studies. May include a performance component. (F,SP)
H195B. Honors Course. (4) Hours to be arranged. 
Prerequisites: Honors status in the Department of Dramatic Art; successful completion of H195A and consent of instructor if performance is involved. Formerly Dramatic Art H195B. Development of subject studied in H195A, either as a bachelor’s thesis or a laboratory project in acting, directing, playwriting, design, or dance. (F,SP)

196. University Theatre Workshop. (4) Course may be repeated for credit. Twelve hours of studio per week. Prerequisites: Department approval; theater projects also require 60 and 162; dance projects also require 60 and 146B. Formerly Dramatic Art 196. Individual directorial projects for advanced undergraduates. Research, tryout, callbacks, and rehearsals which result in performing for the public will average 20 hours per week. (F,SP) Staff

197. Field Studies in Technical Theatre. (1-4) Course may be repeated for credit. Enrollment is restricted: see the “Introduction to Courses and Curricula” section of this catalog. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Consent of Instructor. Formerly Dramatic Art 197. Supervised experience, in connection with the theatrical production in field of: scenic construction; costume construction and conservation; theatrical lighting; stage management; public relations; theatre management; programming; ideas management.

198. Directed Group Study for Undergraduates. (1-5) Course may be repeated for credit. Enrollment is restricted: see the “Introduction to Courses and Curricula” section of this catalog. One-half to five hours of directed group study per week. Must be taken on a pass/no pass basis. Formerly Dramatic Art 198. Supervised group study of special topics, subject to approval by the chair. (F,SP)

199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Enrollment is restricted: see the “Introduction to Courses and Curricula” section of this catalog. Individual study. Must be taken on a pass/no pass basis. Prerequisites: Eight or more units in the Department of Dramatic Art, with an average grade of B. Restricted to honor students. Formerly Dramatic Art 199. Reading and conference with an instructor in an area not corresponding with any regular course. (F,SP)

Graduate Courses

200. Graduate Colloquium on Interdisciplinary Research in Performance. (1,2) Course may be repeated for credit. Graduate students in dramatic art are required to take this course at least three times, the first time for 2 units and thereafter for 1 unit. Two hours of colloquium per week. Formerly Dramatic Art 200. This seminar is designed to introduce graduate students to: the research resources of the University; the research interests and methodologies of the faculty affiliated with the Ph.D. program; theater as a profession; and trends and developments in theater studies. Students will work collaboratively on research projects. (F,SP) Staff

201. Performance Theory. (4) Three hours of semina per week. Formerly Dramatic Art 201. This core seminar for graduate students focuses on key issues in the theory of theatrical performance, with an emphasis on contemporary theoretical inquiry. Issues of representation and identity, presence, community, social efficacy, reception and its effects, and the roles of performers and production elements will be addressed. (F,SP) Staff

202. Methodologies and Approaches to Theater in Context. (4) Three hours of seminar per week. Formerly Dramatic Art 202. Study of different approaches and contemporary methodologies for analyzing theatrical performance in various kinds within their cultural and historical context. (F,SP) Staff

203. Theatrical Texts, Spaces, and Bodies. (2-4) Course may be repeated for credit. One and one-half to three hours of seminar per week. Formerly Dramatic Art 203. Conceived as a bridge between the academic and practical aspects of theater studies, this course combines a research seminar with a performance workshop. The instructor uses the seminar portion of the course to develop a significant issue in the theory and practice of contemporary performance; students then conduct a six-week rehearsal and workshop performance in conjunction with the seminar. Course may involve visiting artists when possible. (F,SP) Staff

266. Special Topics: Theater Arts. (1-4) Course may be repeated for credit. Number of units will vary depending on specific course format and requirements. One hour of lecture or three hours of laboratory per week per unit. Formerly Dramatic Art 266. Topics vary from semester to semester and have included: The Power of Music and Poetry in the Theater; Modern Drama and Theater, 1940 to the Present; Theaters, Trickers, and Cultural Exchange; Art as Social Action; and The Invisible World (Process Seminar). (F,SP) Staff

277. Special Studies in Directing. (1-4) Course may be repeated for credit. Three hours of studio per week per unit. Prerequisites: Advancement to candidacy for the Ph.D. and consent of instructor. Formerly Dramatic Art 277. Advanced practice in play direction. (F,SP)

294. Directed Research. (1-12) A maximum of 12 units may be divided among several instructors during a semester. Prerequisites: Graduate standing in Dramatic Art and consent of instructor. Formerly Dramatic Art 294. Meetings to be arranged, either individually or as a group to explore fields not covered in courses listed elsewhere in dramatic art’s offerings. May be taken by students engaged in writing dissertations. (F,SP)

299. Special Study. (1-4) Course may be repeated for credit. One unit of credit for every three hours of independent study. Prerequisites: Graduate standing. Formerly Dramatic Art 299. May be taken when preparing prospectus, graduate portfolio, and/or oral presentation before qualifying oral examination. May not be substituted for available seminars. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-12) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Formerly Dramatic Art 602. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,SP) Staff

Professional Courses

300. Professional Preparation: Supervised Teaching in Dramatic Art. (2-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/un satisfactory basis. Prerequisites: Graduate standing, appointment as a teaching assistant or associate, or consent of instructor. Formerly Dramatic Art 300. Discussion, problem review and development, course development, supervised practice of teaching. (F,SP)

Undergraduate and Interdisciplinary Studies

(College of Letters and Science)

Mission

Undergraduate and Interdisciplinary Studies (UIS) in the Undergraduate Division of the College of Letters and Science serves as a center for innovations in undergraduate education that extend beyond traditional departmental boundaries. Our major and major programs attract undergraduates who wish to explore the most intellectually engaging and promising interdisciplinary fields under the direction of scholars who are pioneers in charting these new areas and methods of inquiry. UIS has been, and continues to be, an incubator for new ideas, including experimental programs and courses, as well as curricula designed to promote productive members of a liberal arts education. We are especially dedicated to creating programs such as the Freshman Seminar Program and the Undergraduate Research Program that nurture productive intellectual relationships between faculty members and students.

Field Major

Interdisciplinary Studies. The ISF major affords undergraduates a thoroughly interdisciplinary framework for their studies. The program allows students to establish individualized areas of concentration using courses in the humanities, the social sciences, and/or the professional schools and colleges.

Group Majors

American Studies. This group major offers students the opportunity to study American society using a broad range of methods drawn from a variety of disciplines in the College of Letters and Science and the professional schools and colleges. Group studies courses may be taken to take into account how the cultures of America have been continually reshaped by movements of people, commerce, and ideas crossing borders. The major draws on faculty resources and research in literature, history, economics, architecture, material culture, media studies, ethnic studies, and urban and regional studies.

Cognitive Science. This group major is the cross-disciplinary study of the structure and processes of human cognition and their computational simulation or modeling. This interdisciplinary program has been designed to give students an understanding of questions dealing with human cognition, such as neural formation, visual perception, the acquisition and processing of natural language, and human reasoning and problem solving. The program draws on relevant courses found within the fields of biology, computer science, education, linguistics, neuroscience, philosophy, and psychology, as well as specially designed lower and upper division courses in cognitive science.

Environmental Sciences. The environmental sciences group major is jointly administered by the College of Letters and Science and the College of Natural Resources. The curriculum of the major emphasizes a broad and comprehensive education in the fundamentals of biology, chemistry, physics, and mathematics, and in social science directly related to environmental problems. The major is concerned with interactions between human activities and biological and physical environments on
freshmen and sophomores. Seminars, which emphasize interaction and discussion, provide a counterpart to the learning experience in Berkeley’s large lecture halls. The Radio offers lower division students an unprecedented opportunity to explore a wide range of majors and even fields of study usually reserved for graduate students. As you broaden your horizons, you will discover new majors, see the “International and Area Studies” section of this catalog.

Media Studies. The major applies a range of disciplines in the social sciences and humanities to the understanding of contemporary mass media and their structure, history, content, consequences, and policy implications.

Religious Studies. The major provides opportunities for students to explore the role of arts while at the same time allowing for a focus on a thematic concern or a particular religious tradition. The major views religion from a global perspective, choosing from a wide variety of courses in numerous departments. The creative writing minor is available at the minor office. For more information on the great variety of fields of study usually reserved for graduate students, go to UGIS office at (510) 642-0108 or go to learning.berkeley.edu/creative.

Disability Studies Minor explores how to best meet the challenges and alleviate the problems of those with impairments or disabilities, with emphasis on the role of those affected in defining problems and evaluating solutions. The minor requirements consist of two core courses and three approved upper division electives chosen from a wide variety of courses and social sciences. A religious studies minor is also available.

Minor Programs

The Creative Writing Minor requirements consist of three upper division creative writing courses and two upper division literature courses. Students may choose among a wide variety of courses from numerous departments. The creative writing minor is housed in the Office of Undergraduate and Interdisciplinary Studies, 301 Campbell Hall. A student handbook outlining minor requirements in detail is available. For more information, call the UGIS office at (510) 642-0108 or go to learning.berkeley.edu/creative.

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The UC Berkeley Washington Program allows undergraduates to spend a semester in Washing- ton, D.C. Students in the program combine coursework with field research in an internship that reflects each student’s particular area of interest. For more information, please call (510) 642-9102, M24 Wheeler Hall, or go to learning.berkeley.edu/ucdc.

The Office of Undergraduate Research (OUR) seeks to involve undergraduates more deeply in the research life of the University. To this end, OUR coordinates and develops programs and resources that bring undergraduates into the field, laboratories, and archives. Whether assisting faculty with research or pursuing their own research under faculty supervision, Berkeley students can experience what it means to be a part of cutting-edge research at a world-class research uni- versity. For information on the great variety of undergraduate research opportunities at Berkeley, visit the Research @ Berkeley home page at research.berkeley.edu or e-mail research@learning.berkeley.edu.

The Undergraduate Research Apprentice Program (URAP) is the ideal place for students to begin to put their classroom learning to use. As research apprentices, students gain skills and research experience. The URAP web site for a current list of faculty projects at research.berkeley.edu/urap.

When students are ready to embark on research of their own design, the Summer Undergraduate Research Fellowship, the Haas Scholars Program, and various departmental fellowships that allow students to pursue sophisticated research. For information about these and other programs, go to research.berkeley.edu.

The Office of Undergraduate Research is located in 301 Campbell Hall, (510) 642-3795.

Lower Division Courses

C10. The Eye and Vision in a Changing Environment. (2) Two hours of lecture per week. Course introduces students to the basic principles of visual perception, visual disorders, and the role of cultural, environmental, and policy factors in visual health. Students will not receive credit for C12 after taking English C77 or Environmental Science, Policy, and Management C12. Three hours of lecture and one and one-half hours of discussion per week. This innovative course is taught by a scientist and a humanities professor: surveys current global environmental issues; introduces students to the basic intellectual tools of environmental science; investigates the human relationship to nature that has been imagined in literary and philosophical traditions; and examines how tools of scientific and literary analysis, scientific method, and imaginative thinking can clarify what is at stake in environmental issues and ecological citizenship. Satisfies the Biological Science and Philosophy and Values breadth requirements in the College of Letters and Science. Also listed as Environ Sci, Policy, and Management C12 and English C77. (F) Sposfo

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman sem- inars are offered in all campus departments and vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Priority given to freshmen and sophomores. One hour of seminar per week per unit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP)

R44A. Topics in Western Civilization. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: Completion of UC Entry-Level Writing Requirement. Formerly 44A. Homeric and Classical Greece, Rome in its transition from republic to empire, and the world of the New Testament. The course will meet in small groups for discussion. Lectures, discussions, and reading assignments will involve interdisciplinary approaches with an emphasis on the development of skill in interpreting both halves of the Reading and Composition requirement. (F,SP) Staff

R44B. Topics in Western Civilization. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: Completion of UC Entry-Level Writing
must apply in advance for admission into this course. (F) Schweik

C132. Children Through History: Social Practices and Social Welfare. (4) Three hours of lecture and one hour of discussion per week. This course brings together historical and critical analysis and developments faced by social welfare professionals to create a new and provocative examination of children and childhood in America. Topics covered will include children and the American founding, the Industrial era, and the state of the superpower. A significant research paper is required. Also listed as History C129 and Social Welfare C129. (F,SP) Staff

C133. Death, Dying, and Modern Medicine: Historical and Contemporary Perspectives. (3) Three hours of lecture per week. This course will study the end of life—dying and death—from the perspective of medicine and history. It seeks to confront the humanist with the quotidian dilemmas of modern clinical practice and medicine’s deep engagement with death more generally. It invites pre-med, pre-law, and public policy students to understand these matters in light of the historical and, more broadly, literary and artistic perspectives of the human lives which reached the media in the last decade and before. Three hours of lecture and one hour of discussion per week. This course is for students with and without disabilities, and may be of special interest to students preparing for careers in the health professions, education, law, architecture, social work, or gerontology. (F,SP) Staff

112. Women and Disability. (3) Three hours of lecture per week. This course will examine the intersection of women’s experiences and disability issues, emphasizing the social and personal impact of disability and chronic illness on relationships, identity, employment, health, body image, sexuality, reproduction, motherhood, and aging. Through real stories of women’s lives which reached the media in the last decade and before, students will move toward a dynamic understanding of the range of physical, emotional, and mental disabilities in the context of current social forces and public policy. We will explore historical perspectives, as well as current trends in medical care, care-giving, insurance benefits, law, and communal activism, as they affect and are affected by disabled women and girls and their families. We will discuss controversial ethical issues such as prenatal screening, wrongful birth, birth and suits, and physician-assisted suicide. Course readings will draw on the rich literature of disabled women’s autobiographies, biography and autobiography, scholarly and popular writing on disability, feminist art, creative writing, women’s art, film, and theatre. (F,SP) Saxton

113. Disability Studies in Practice. (3) Six hours of internship and one hour of seminar per week. Prerequisites: Consent of instructor. A graded service-learning experience in disability studies. Students will draw lessons from working in collaboration with major disability rights and independent living organizations. Each student will do an internship at one of these organizations for six hours a week. Internships will draw on the rich literature of disabled women’s experiences and disability issues such as prenatal screening, wrongful birth law, and physician-assisted suicide. Course readings will involve interdisciplinary approaches with an emphasis on the development of skill in writing. Students will meet weekly with the Reading and Composition requirement. (F,SP) Staff

R44C. Topics in Western Civilization. (4-5) Three hours of lecture and one (for 4 units) or two (for 5 units) hours of discussion per week. Prerequisites: Completion of UC Entry-Level Writing Requirement requirement. Formerly R44A. Writing with the Enlightenment, roughly from the last years of the 17th century through the 18th century, or from the constitutional revolution in England (1688) and the American and French revolutions. Will meet in small groups for discussion and writing. Satisfies either half of the Reading and Composition requirement. (F,SP) Staff

98. Directed Group Study for Lower Division Students. (1-4) Course may be repeated for credit as topic varies. Must be taken on a passed/not passed basis. Seminars for the group study of topics not covered by regularly scheduled courses. Topics may vary from semester to semester. (F,SP) Staff

Upper Division Courses

110. Introduction to Disability Studies. (3) Three hours of lecture per week. This course focuses on the cultural, political, and historical meaning of disability and chronic illness. We will explore: definitions and conceptual models for the study of disability, the history of disabled people, bio-ethical perspectives, the depiction of disability in literature and the arts, public attitudes, and legal and social policies. The course will investigate the interaction of disability with social factors, such as gender, sexual orientation, race, ethnicity, and class. The course is for students with and without disabilities, and may be of special interest to students preparing for careers in the health professions, education, law, architecture, social work, or gerontology. (F,SP) Staff

111. Women’s Disability Studies. (3) Three hours of lecture per week. This course explores how women and disability self-identify and are affected by disabled women and girls and their families. This is the fourth course in a four-course sequence. Students must apply in advance for admission into this course. (F) Schweik

112. Women and Disability. (3) Three hours of lecture per week. This course will examine the intersection of women’s experiences and disability issues, emphasizing the social and personal impact of disability and chronic illness on relationships, identity, employment, health, body image, sexuality, reproduction, motherhood, and aging. Through real stories of women’s lives which reached the media in the last decade and before, students will move toward a dynamic understanding of the range of physical, emotional, and mental disabilities in the context of current social forces and public policy. We will explore historical perspectives, as well as current trends in medical care, care-giving, insurance benefits, law, and communal activism, as they affect and are affected by disabled women and girls and their families. We will discuss controversial ethical issues such as prenatal screening, wrongful birth, birth and suits, and physician-assisted suicide. Course readings will draw on the rich literature of disabled women’s autobiographies, biography and autobiography, scholarly and popular writing on disability, feminist art, creative writing, women’s art, film, and theatre. (F,SP) Saxton

R prefix=language course for business majors
C prefix=course cross-listed course
H prefix=honors course

R prefix=course satisfies R&c requirement
L prefix=suffix/course satisfies American Cultures requirement

*Professor of the Graduate School
Recipient of Distinguished Teaching Award
165. A Window Into How Washington Works. (3) Three hours of lecture per week. The federal government effects policy (e.g., enhancing public safety, protecting the environment, promoting a viable and growing economy, etc.) primarily in three ways: taxing, spending, and regulating. This course will explore how regulations—an important instrument of government and one of a President to make his/her mark—are developed, amended, or repealed, with an emphasis on how the various institutions of the federal government are involved in the process and how they interact with the other interested entities. (SP) Katzen

166. The New World Order and Its Critics. (3) Three hours of lecture per week. Since the end of the Cold War, the phrase “new world order” has become ubiquitous. For some, this phrase points to the U.S.’s dominant role as the most powerful state in the international arena, with a special opportunity and obligation to establish a new pax Americana. For others, the driving force is more spontaneous, linked to the much broader process of globalization, featuring transnational flows of capital, corporations, information, people, and lifestyles in an increasingly "borderless" world. For still others, it is the emergence of meaningful forms of governance beyond the nation-state. On the other hand, some scholars and actors see very little that is actually new, treating the post-Cold War order as simply the most recent iteration of traditional realpolitik. This course will attempt the West to impose its values, economic interests, and political systems upon others without consideration of the diversity of cultures worldwide or the economic vulnerability of poorer regions. This seminar aims to understand the assumptions and historical interpretations that inform these different understandings of the post-Cold War world. (SP) Doherty

167. Environmental Regulation and Policy. (3) Three hours of lecture per week. This course provides an introduction to some of the leading issues and themes in the development of modern environmental regulation in the U.S. With the help of Richard Lazarus’ survey, The Making of Environmental Law (2004), we will explore and elaborate on the regulatory regime that has governed the use of American air, water, land, and wildlife resources since 1970. We will then look back to some of the classic expressions of the conservation ethic in America in the writings of John Muir, Rachel Carson, and others. We will examine certain ongoing challenges to the achievement of environmental protection goals, including in the area of climate change, and the tensions with economic and other societal imperatives inherent in attempted regulatory solutions to these challenges. The final class session(s) will be devoted to student presentations of research essays that are in F. Siler

168. Congressional Elections. (3) Three hours of lecture per week. This seminar focuses on the congressional campaigns, drawing examples from current elections. Congressional campaigns will be examined from several perspectives, including those of candidates, party officials, and interest group leaders. The class will explore the backgrounds of congressional candidates, the decision to run for office, campaign organizations, campaign finance, strategy, communications, and interest in related topics. The seminar will draw on the expertise available in the Washington area. Party officials and political consultants who work in congressional elections will brief the class on current developments. Students are advised that they may need to adjust their schedules to attend the briefings. (F) Herrmann

169. American Foreign Policy. (3) Three hours of seminar per week. This seminar is dedicated to developing critical reading and writing skills in the areas of international relations and contemporary (comparative) history. A seminar requires a great deal from participants. Students are expected to take charge of their learning, engaging with each other and the instructor where appropriate, and solving problems. Students will produce three pieces of analytical writing. These are complementary and cumulative assignments that, combined, will enhance students’ understanding of the nature, purpose, and future of U.S. hegemony or global dominance. This is the issue, arguably, at the core of debate today about American foreign policy. (SP) Visser

171. The Middle East Conflict in Living Color and the American Civil War on Stage. (3) Three hours of lecture per week. Over the past four years, this course has canvassed the Washington theater scene and discovered a wealth of politically and socially attuned material. We have seen theater of the post-Cold War period suprisingly, emerged as the second most vibrant theatrical city in the nation, surpassing Chicago and Los Angeles in number of performances offered, audience in attendance and union actors appearing in Equity-contracted productions. The city now boasts some of the finest classical, flagship, and culturally specific theaters in the country. This advent of a robust theater scene planted at the center of a city with a vibrant theater community profile: that of an artistic force able to speak truth to power. Yet often times, theatrical institutions are constrained by the divided nature of the audience they play for, or the critical community that critiques them, or differing notions about the purpose of theater. What kind of portraits are emerging from area theaters in this politicized capital? What are the political practices within these institutions that seek to engage and entertain their patrons? (SP) Roth

172. Islam and Democracy in the Modern Age. (3) Three hours of lecture per week. This course will primarily undertake to explore democratic notions in Islamic tradition that could provide a legal base for political legitimacy, but that either have not been institutionalized, or have disappeared over the course of history. The course then studies Muslim societies in modern times to find out how these Islamic democratic notions have been influenced by modern circumstances and incorporated in Muslim political systems. It then turns to the pluralistic interpretations of Islam that have, since the beginning of the 20th century, tried to adapt democratic institutions to Islamic values. Closely related to this issue, it also studies the new round of hermeneutical readings of the religious texts, which emerged beginning in the 1980s, that seek the development of a new generation of theological interpretations for the application of modern meanings of the texts. Finally, the course will survey challenges against the above-mentioned recent trends brought by traditional thinkers for whom the free interpretation of the religious texts would weaken the faith and add to the present confusion in understanding Islam. (SP) Moussavi

173. Museums and Society: The Power of Display in Washington DC. (3) Three hours of lecture per week. This course explores museums as dynamic sites of intellectual and cultural debate, and as institutions vested with the authority to define aesthetics, history, heritage, and even citizenship. Now more than ever, as the process of globalization raises questions about the fluidity, preservation, and “authenticity” of culture, museums of all kinds are attracting great interest both as places to visit and as a subject of critical analysis in their own right. As places defined by the collection, display, and interpretation of objects, museums are bound up in questions of permanence and transience, difference and identity, equity and privilege —issues that lie at the heart of what is termed the “new museum.” In the new museum, the physical institutional repositories of community memory or indigenous knowledge, they are also bound up in questions of representation, access and ownership—issues that move the debate over which propositions square into the politics of local, state, and national control over heritage. If ownership and control are the new realities of international heritage policy (and law), museums have quickly emerged as important sites on which and through which the claims are being made. (SP) Reddy

174. Religion and Politics in the United States. (3) Three hours of lecture per week. Thomas Jefferson said that there should be a “wall of separation” between religion and the state in order to protect each. Nonetheless, throughout U.S. history, religion, politics and government have been mixed together in a variety of ways. And there is no doubt that religion has been a powerful motivator of U.S. citizens to engage in political action (e.g., the temperance move-
Urban Design / 501

Urban Design
(Chair of Environmental Design)

Office: 202 Wurster Hall, (510) 642-2965
mud.ced.berkeley.edu

Professors
†Nezar AlSayyad, Ph.D. (Architecture)
Peter C. Bosselman, M.Arch. (Architecture, City and Regional Planning, Landscape Architecture and Environmental Planning)
René Davids, M.A. (Architecture)
Elizabeth Deakin, J.D., M.C.P. (City and Regional Planning)
Hammon Frazier Jr., M.F.A., F.A.I.A. (Architecture)
Randolph T. Hunter Jr., M.L.A. (Landscape Architecture and Environmental Planning)
Walter J. Hood Jr., M.Arch., M.F.A., F.A.I.A. (Landscape Architecture and Environmental Planning)
Michael Southworth, Ph.D., M.C.P. (City and Regional Planning, Landscape Architecture and Environmental Planning)
Richard Bender (Emeritus), Ph.D.
Allan B. Jacobs (Emeritus), M.C.P.
Dorothy Lyndon (Emeritus), M.L.A.
Daniel Solomon (Emeritus), M.Arch.
Associate Professors
Renee Chow, M.Arch. (Architecture)
Elizabeth Macdonald, Ph.D., M.C.P. (City and Regional Planning)
Louise Mozingo, M.L.A. (Landscape Architecture and Environmental Planning)
Assistant Professor
Nicholas de Monchaux, M.Arch. (Architecture)

Adjunct Professor
John L. Kriken, M.Arch. (Landscape Architecture and Environmental Planning)

Program Overview

The Master of Urban Design Program is a unique, interdisciplinary program of advanced study in which exceptional architects, landscape architects, and planners holding professional degrees can partake in an intense, focused learning experience. They will share working methods, acquire additional skills, and explore new avenues of development under the supervision of an interdisciplinary group of faculty members in the College of Environmental Design drawn from the Departments of Architecture, Landscape Architecture and Environmental Planning, and City and Regional Planning.

The program addresses the need for professionals who are concerned specifically with the design of varied urban areas open to public use. The activities of urban design are diverse in both type and scale. Urban designers may be concerned with settlement patterns in urbanizing areas, town layout, the restructuring of inner cities, and the design of streets and open spaces, buildings, and landscape patterns that establish neighborhoods and provide settings for public life. They may shape the form and space of specific places such as civic or shopping centers, or they may design citywide systems such as streets, lighting, signing, greenways, or bicycle and pedestrian ways. They may work on infill in older towns and cities, or they may prepare plans, guidelines, or standards to manage extensive new development at the metropolitan growth edge.

The need for urban designers is as urgent today as in any period of recent history. Worldwide, the cities of both developing and developed countries are struggling with problems of managing rapid growth. Urban design professionals are as necessary in cities of developing countries where infrastructure and land use patterns are being established as in developed cities, where historical continuity and the reuse of existing sites are major issues.

Urban places are shaped by many forces acting over long spans of time. The design of good places—places that are configured so that they will sustain reasonable patterns of development, provide valuable opportunities for public and private involvement, and nurture citizenship—requires many skills. Their design requires consideration of current users, as well as unknown future users. Ecological, cultural, social, political, technical, and financial issues must be addressed.

Today as more and more land is developed in patterns that are dehumanizing and wasteful, our core cities continue to decline. Repair of the country’s urban infrastructure is an increasingly important priority. Under these circumstances designers are needed who are able to work effectively in teams across a range of scales and with a well-developed understanding of urban places and the interdependencies of the fabric of buildings, landscapes, public ways, and the social interactions that shape them. Professionals are in demand who can deal creatively with urban design problems both within existing towns and cities and at the growth edge of the metropolis. Older inner city districts require rethinking and adaptation to new uses and to new groups of users. At the same time, cities are expanding at an unprecedented pace into open land. New models for dealing with peripheral growth are desperately needed that are socially informed and ecologically sensitive.

Information on the program and degree requirements is available from the Graduate Office in 202 Wurster Hall; by calling (510) 642-2965; or at mud.ced.berkeley.edu.

For information on courses specifically designed for the Master of Urban Design Program, please see the descriptions for ENV DES 201, 251, and 252 in the “Environmental Design” section of this catalog. For information on ENV DES 253, the summer thesis studio, see mud.ced.berkeley.edu/courses.

Urban design also may be pursued as a concentration in the master’s degree programs in the Departments of Architecture, Landscape Architecture and Environmental Planning, and City and Regional Planning. A concurrent degree in urban design offering both the M.L.A. and M.C.P. is offered in Landscape Architecture and City and Regional Planning, and a concurrent degree in urban design offering both the M.Arch. and M.C.P. is offered in architecture and city and regional planning. Please refer to these departments for further information.

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*Professor of the Graduate School
R prefix=course satisfies R&C requirement
AC suffix=course satisfies American Cultures requirement
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An antique art illuminates ideas

In a corner of the beautifully renovated Bancroft Library, in a room filled with lead type, an 1850s printing press, and the pungent smell of ink, lecturer Les Ferriss teaches the history and art of making books. Students get to work with rare library treasures, such as an original leaf from a Gutenberg Bible. Each class makes a masterpiece of its own, hand-printing an unpublished manuscript as a final project.
Criteria Used in Selecting Freshmen

Evaluation (All Berkeley Colleges)

The purpose of the selection process is to identify applicants who are mostly likely to contribute to Berkeley’s intellectual and cultural community and, ultimately, to the State of California. Selection is based on a comprehensive review of all information—both academic and personal—presented in the application.

All applications are read in their entirety by trained professional readers. After reading and analyzing a file, the readers determine a comprehensive score which is the basis upon which the student is ultimately admitted or denied. Admissions managers conduct multiple checks for consistency and completeness throughout the reading process. While this evaluation process is based on professional judgments rather than a system that quantifies factors and incorporates them into a numerical formula, the extensive reader training, the additional reading of a file, as well as other monitoring procedures, ensure that the process is highly reliable. Formal tests of reliability are conducted regularly.

The admission review reflects the readers’ thoughtful consideration of the full spectrum of the applicant’s qualifications, based on all evidence provided in the application, and viewed in the context of the applicant’s academic and personal circumstances and the overall strength of the Berkeley applicant pool. Using a broad concept of merit, readers employ the following criteria that carry no pre-assigned weights:

1. The applicant’s full record of achievement in college preparatory work in high school, including the number and rigor of courses taken and grades earned in those courses. Consideration is given to completion of courses beyond the University’s “a-g” minimums; strength of the senior-year course load; and performance in honors, college-level, Advanced Placement, and International Baccalaureate Higher Level (IBHL) courses, to the extent that such courses are available to the applicant. In assessing achievement levels, consideration is given to individual grades earned, to the pattern of achievement over time, and to an applicant’s achievement relative to that of others in his or her high school, including whether he or she is among those identified as Eligible in the Local Context.

2. Personal qualities of the applicant, including leadership ability, character, motivation, tenacity, initiative, originality, intellectual independence, responsibility, insight, maturity, and demonstrated concern for others and for the community. Readers also consider whether the applicant has challenged himself or herself academically and in other activities, and the extent of success in meeting such challenges.

3. Likely contributions to the intellectual and cultural vitality of the campus. In addition to a broad range of intellectual interests and achievements, admission officers seek diversity in personal background and experience. To evaluate evidence of special talents an applicant may possess, the Admissions Office may seek the advice of Berkeley faculty members in relevant disciplines (e.g., music, art, drama, mathematics).

4. Performance on standardized tests, including the three required SAT II tests, the SAT I (or ACT), and any Advanced Placement or IBHL examinations the applicant may have taken. Applicants who have not had the opportunity to take Advanced Placement or IBHL courses or who have chosen not to take the examinations for these courses are not disadvantaged. Test scores are evaluated in the context of all other academic information in the application, and preference is given to tests that show a demonstrable relationship to curriculum. Under no circumstances does Berkeley employ minimum scores or “cut-offs” of any kind.

5. Achievement in academic enrichment programs, including but not limited to those sponsored by the University of California. This criterion is measured by time and depth of participation, by the applicant’s academic progress during that participation, and by the intellectual rigor of the particular program.

6. Other evidence of achievement. This criterion recognizes exemplary, sustained achievement in any field of individual or creative endeavor; accomplishments in the performing arts and athletics; employment; leadership in school or community organizations or activities; and community service. Race, ethnicity, gender, religion, and national origin are excluded from the criteria. Preference in the selection process is given to California residents.

All achievements, both academic and non-academic, are considered in the context of the opportunities an applicant has had, and the reader’s assessment is based on how fully the applicant has taken advantage of those opportunities. For applicants who have faced any hardships or unusual circumstances, readers consider the maturity, determination, and insight with which they have responded to and/or overcome them. In evaluating the context in which academic accomplishments have taken place, readers consider the strength of the high school curriculum, including the availability of honors and Advanced Placement courses and the total number of college preparatory courses available, among other indicators of the resources available within the school. When appropriate and feasible, they look comparatively at the achievements of applicants in the same pool who attended the same high school and therefore might be expected to have similar opportunities and challenges. They also consider other contextual factors that bear directly on the applicant’s achievement, including linguistic background, parental education level, and other indicators of support available in the home.

The review also recognizes a wide range of talent and creativity that is not necessarily reflected in traditional measures of academic achievement but which, in the judgment of the reader, is a positive indicator of the student’s ability to succeed at Berkeley and beyond; to contribute meaningfully and uniquely to intellectual and social interchanges with faculty and fellow students, both inside and outside the classroom; and to make a special contribution to our society and culture. In applying the criteria above, readers carefully consider evidence provided in the personal statement, as well as in the academic record and list of honors and achievements. For example, the essay may reveal a level of maturity and ability to reflect on one’s life experience in relation to the larger world that indicates a high potential to benefit from and contribute to the richness of the intellectual life of the campus. Or it may reveal special qualities of leadership and initiative that indicate unique potential to contribute to the intellectual, social, and political life of the state and nation.
Selection

UC Berkeley is among the most selective universities in the country, becoming more competitive for freshman applicants each year. This past year Berkeley received more than 48,000 applications, more than 90 percent of which came from UC-eligible students. Generally the campus is able to admit about one in four freshman applicants for the fall semester. Because of student demand, selectivity varies from college to college and, as in the College of Engineering, from major to major; for example, it is more difficult to gain admission to the electrical engineering and computer sciences major than to the mechanical engineering major.

For applications to the Colleges of Letters and Science, Natural Resources, and Environmental Design, no consideration in the review process is given to the indicated major. However, for the professional Colleges of Chemistry and Engineering, demonstrated interest in the major is also taken into consideration. Furthermore, Berkeley faculty in the Colleges of Chemistry and Engineering have also asked that readers place added emphasis on sustained achievement in mathematics and science, and have indicated a preference that these applicants take the SAT II level 2C mathematics examination and that they choose for their third SAT II a science examination.

Criteria Used in Selecting Advanced-Standing Students

Transfer students will be selected primarily on the basis of academic performance and preparation, as assessed by review of the following: college GPA, level of completion of lower division prerequisite courses for the intended college, and/or major and grade trends.

Other criteria that may be considered, as assessed through a comprehensive review of all academic and personal information provided on the application, include extracurricular accomplishment, employment, personal qualities such as leadership or motivation, and likely contribution to the intellectual and cultural vitality of the campus. Demonstrated interest in the major may be considered in the selection of students for professional schools and colleges. All achievement will be considered in the context of the opportunities the applicants have faced and the ways in which they have responded to them.

Applicants must complete at least 60 transferable semester units before transfer. Transfer students from both two-year and four-year institutions are admitted; however, preference is given to California community college transfer applicants who have completed at least 30 semester units at a community college.

Colleges of Chemistry, Engineering, and Environmental Design and the Haas School Business

Applicants must complete the required 60 semester units and all prerequisites by the end of the spring term preceding enrollment. Applicants are expected to complete all lower division prerequisites for the major.

College of Letters and Science

Applicants must complete the required 60 semester units and all prerequisites by the end of the spring term preceding enrollment. Applicants are expected to complete breadth requirements in reading and composition, foreign language, and quantitative reasoning or the IGETC (for California community college students) or the UC Reciprocity Agreement (for intercampus transfer students at other UC campuses). Students are also expected to complete as much preparation for the major as possible.

College of Natural Resources

Applicants must complete all lower division prerequisites for the major.

For more about UC Berkeley’s transfer selection criteria, go to admissions.berkeley.edu. Click on the “Transfer” tab.

Graduation Rates

Berkeley’s graduation rates are the highest on record. Using the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (formerly the Student Right to Know and Campus Security Act of 1990) guidelines for calculating graduation rates, the Berkeley campus shows the following:

<table>
<thead>
<tr>
<th>Percentage of Students Graduating from Berkeley Within Six Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen entering fall 2000</td>
</tr>
<tr>
<td>Freshmen entering fall 2001</td>
</tr>
<tr>
<td>Freshmen entering fall 2002</td>
</tr>
</tbody>
</table>

Professional Development Program

Program Office: 230B Stephens Hall, (510) 642-5881

The Professional Development Program (PDP) creates vibrant and supportive academic communities that are rich in diversity and focused on excellence. PDP students — Berkeley undergraduates and middle/high school students — strengthen their mathematics and science skills and gain insights into the social and cultural world of higher education. Middle/High school students with outstanding academic ability are brought to the Berkeley campus, given intensive preparation for university study, and encouraged to seek professional careers. Math teachers receive professional development in mathematics instruction.

PDP offers Berkeley undergraduate students special academic assistance and counseling and the opportunity to participate in faculty-supervised laboratory research in a broad range of academic disciplines. The program for undergraduate students maximizes access to the wealth of educational resources at Berkeley through individual faculty advising and curriculum planning in the student’s major; workshops in calculus, seminars, and tutorials which augment regular course offerings; laboratory and field placement opportunities as training for research; peer teaching and research assistantships. For further information, please go to the program office or call (510) 642-5881.

CAL Quiz

No. 34

Where on campus is the seal of Stanford University, Cal’s traditional rival, permanently displayed?

(Answer on page 525.)
California Residency and the Nonresident Tuition Fee

If you have not been living in California with intent to make it your permanent home for more than one year immediately before the residence determination date for each semester in which you propose to attend the University, you must pay a nonresident tuition fee in addition to all other fees. The residence determination date is the day instruction begins at the University of California, Berkeley.

Law Governing Residence

The rules regarding legal residence for tuition purposes at the University of California are governed by the California Education Code as adopted by Standing Order 110.2 of The Regents of the University of California. Under these rules, adult citizens or certain classes of aliens can establish residence for tuition purposes. There are also particular rules that apply to the residence classification of minors (see below).

Who Is a California Resident?

If you are an adult who is not an alien present in the U.S. in a nonimmigrant status which precludes you from establishing domicile in the U.S. (e.g., a B, F, H2, H3, J, or TN/ TD visa) and you want to be classified as a resident for tuition purposes, you must have established your continuous presence in California more than one year immediately preceding the residence determination date for the semester during which you propose to attend the University, and you must have given up any previous residence. You must also present objective evidence that you intend to make California your permanent home. Evidence of intent must be dated one year before the term for which you seek resident classification. If these steps are delayed, the one-year durational period will be extended until you have demonstrated both continuous presence and intent for one full year.

Physical presence within the state solely for educational purposes does not constitute the establishment of California residence under state law, regardless of the length of your stay. Your residence cannot be derived from your spouse nor, since you are an adult, from your parents. Likewise, a registered domestic partner does not derive residence from the other registered domestic partner.

Establishing Intent to Become a California Resident

Indications of your intent to make California your permanent residence can include registering to vote and voting in California elections; designating California as your permanent address on all school and employment records, including military records if you are in the military service; obtaining a California driver’s license or, if you never had a driver’s license from any state, a California Identification Card; obtaining California vehicle registration; paying California income taxes as a resident, including taxes on income earned outside California from the date you establish residence; establishing a California residence in which you keep your permanent belongings; licensing for professional practice in California; and the absence of these indications in other states during any period for which you claim California residence.

Documentary evidence is required. All relevant indications will be considered in determining your classification. Your intent will be questioned if you return to your prior state of residence when the University is not in session.

Financial Independence Requirement

Effective fall 1993, if your parents do not meet the requirements to be considered California residents for tuition purposes or if you were not previously enrolled in a regular session at any University of California campus, you will be required to be financially independent in order to be a resident for tuition purposes. If you are an adult student and your parents are not California residents, you must demonstrate financial independence, along with physical presence and intent, when seeking resident classification for tuition purposes. You are considered “financially independent” if one or more of the following applies:

1. you have been living in California with intent to make it your permanent residence for at least one year immediately before the residence determination date for each semester during which you propose to attend the University, and you must have given up any previous residence you had established; or
2. you have legal dependents other than a spouse or registered domestic partner; or
3. you are a ward of the court; or
4. you have not been living in California with intent to make it your permanent residence for more than one year immediately before the residence determination date for each semester during which you propose to attend the University, and you must have given up any previous residence you had established; or
5. you are married, a registered domestic partner, or a graduate or professional student and you were not/will not be claimed as an income tax deduction by your parents or any other individual for the tax year preceding the term for which you are requesting resident classification; or
6. you are a single undergraduate student who was not claimed as an income tax deduction by your parents or any other individual for the two tax years immediately preceding the term for which you are requesting resident classification, and you can demonstrate self-sufficiency for those years and the current year.

Note: Graduate students who are graduate student instructors, teaching or research assistants, or teaching associates employed at 49 percent time or more (or awarded the equivalent in University-administered funds, e.g., grants, stipends, fellowships) in the term for which resident classification is sought are exempt from the financial independence requirement.

General Rules Applying to Minors

If you are an unmarried minor (under age 18), the residence of the parent with whom you live is considered your residence. If you have a parent living, you cannot change your residence by your own act, by the appointment of a legal guardian, or by the relinquishment of a parent’s right of control. If you live with neither parent, your residence is that of the parent with whom you last lived. Unless you are a minor alien present in the U.S. under the terms of a nonimmigrant status which precludes you from establishing domicile in the U.S., you may establish your own residence when both your parents are deceased and a legal guardian has not been appointed. If you derive California residence from a parent, that residence must satisfy the one-year durational requirement.

Specific Rules Applying to Minors

1. Divorced/Separated Parents. If you want to derive California resident status from a California resident parent, you must move to California to live with that parent before your 18th birthday and establish the requisite intent and remain in California until school begins. Otherwise, you will be treated like any other adult coming to California to establish your legal residence.
2. Parent of Minor Moves from California. If you are a minor U.S. citizen or eligible alien whose parent was a resident of California but who left the state within one year of the residence determination date, you are entitled to resident classification if you remain in California after your parent departs, enroll in a California public postsecondary institution within one year of your parent's departure, and, once enrolled, attend continuously until you turn 18.

3. Self-Support. If you are a U.S. citizen or eligible alien and are a minor and can prove that you lived in California for the entire year immediately before the residence determination date, that you have been self-supporting for that year, and that you intend to make California your permanent home, you may be eligible for resident status.

4. Two-Year Care and Control. If you are a U.S. citizen or eligible alien and you lived continuously for at least two years before the residence determination date with an adult who was not your parent but was responsible for your care and control, and who, during the one year immediately preceding the residence determination date was a resident of California, you may be entitled to resident status. This exception continues until you become 18 and have resided in the state long enough to become a resident, as long as you continuously attend an educational institution.

5. Child, Spouse, or Registered Domestic Partner of University Employee (who is assigned outside California). If you are an unmarried dependent child, spouse, or registered domestic partner of a full-time University employee whose assignment is outside California (e.g., Los Alamos National Laboratory or the University of California at Washington, D.C., Center), you may be eligible for a waiver of the nonresident tuition fee. Your parent’s, spouse’s, or registered domestic partner’s employment status with the University must be ascertained each semester.

6. Dependent Child of a California Resident Parent. If you have not been an adult resident of California for more than one year and you are a dependent child of a California resident parent who has been a resident for more than one year immediately before the residence determination date, you may be entitled to a waiver of the nonresident tuition fee until you have resided in California for the minimum time necessary to become a resident as long as you maintain continuous attendance at an educational institution.

7. Native American Graduates of a BIA High School. If you are a graduate of a California high school operated by the Federal Bureau of Indian Affairs, you may be eligible for an exemption from the nonresident fee.

8. Employee of a California Public School District. Any person holding a valid credential authorizing service in the public schools of the state of California who is employed by a school district in a full-time certificate position may be eligible for a nonresident tuition waiver.

9. Student Athlete in Training at U.S. Olympic Training Center, Chula Vista. Any amateur student athlete in training at the United States Olympic Training Center in Chula Vista may be eligible for a waiver of the nonresident tuition fee until he or she has resided in the state the minimum time necessary to become a resident.

10. Graduate of a California High School. You may be entitled to an exemption from nonresident tuition if you attended high school in California for three or more years and graduated from a California high school (or attained the equivalent). You are not eligible for this exemption if you are a nonimmigrant alien.

11. Spouses, Registered Domestic Partners, and Dependents of California Residents Killed in September 11, 2001, Terrorist Attacks. If you are an undergraduate student who is a spouse, registered domestic partner, or dependent of a California resident killed in the September 11, 2001, terrorist attacks on the World Trade Center and the Pentagon or the crash of United Airlines Flight 93, you may be eligible for an exemption from the nonresident tuition fee. Eligible students must meet the financial need requirements for the California Grant Program.

12. Recipient or Child of a Recipient of the Congressional Medal of Honor. If you are a recipient of the Congressional Medal of Honor or the child of a recipient of the Congressional Medal of Honor, you may be eligible for an exemption from nonresident tuition fee.
Temporary Absences

If you are a nonresident student who is in the process of establishing California residency for tuition purposes and you leave California during non-academic periods (for example, to return to your former or parent’s home state), your presence in California will be presumed to be solely for educational purposes, and only convincing evidence to the contrary will rebut this presumption. Students who are in the state solely for educational purposes will not be classified as residents for tuition purposes, regardless of the length of stay.

If you are a student who has been classified as a resident for tuition purposes and you leave the state temporarily, your absence could result in the loss of your California residence. Again, only strong evidence will rebut the presumption that you are in California solely for educational purposes. The burden of proof will be on you to verify that you did nothing inconsistent with your claim of a continuing California residence during your entire absence.

If you are a minor student, your residence is determined by the residence of the parent(s) with whom you live or last lived, and you would not lose that residence unless you perform acts inconsistent with a claim of permanent California residence. Some steps that you (or your parent(s)) if you are a minor student) should take to retain resident status for tuition purposes are:

1. Satisfy California resident income tax obligations. It should be noted that individuals claiming permanent California residence are liable for payment of income taxes on their total income, including income earned outside the state (abroad or in another state).

2. Continue to use a California permanent address on all records (educational, employment, military, etc.).

3. Attend an out-of-state public institution as a nonresident for the entire period of enrollment there.

4. Retain your California voter’s registration and vote by absentee ballot.

5. Maintain a California driver’s license and vehicle registration. If it is necessary to change your license or registration while temporarily residing in another state, the license must be changed back to California within 10 days of the date of return to the state, and the vehicle registration must be changed within 20 days of the date of return.

6. Return to California during your vacation periods.

Incorrect Classification

If you were incorrectly classified as a resident, you are subject to reclassification and to payment of all nonresident tuition fees not paid. If you concealed information or furnished false information and were classified incorrectly as a result, you are also subject to University discipline. Resident students who become nonresidents must immediately notify the campus residence deputy.

Inquiries and Appeals

Inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to the Residence Deputy, Office of the Registrar, 120 Sproul Hall, Berkeley, CA 94720-5404, telephone (510) 642-5990, e-mail ores@berkeley.edu, or the Legal Analyst—Residence Matters, 1111 Franklin Street, 8th Floor, Oakland, CA 94607-5200. No other University personnel are authorized to supply information relative to residence requirements for tuition purposes.

Any student, following a final decision on residence classification by the residence deputy, may appeal in writing to the legal analyst within 30 days of notification of the residence deputy’s final decision.

Caution: This summary is not a complete explanation of the law regarding residence for tuition purposes. Additional information is available from the Office of the Registrar and at registrar.berkeley.edu/residency/legalinfo.html. Note: Changes may be made in the residence requirements between the publication date of this statement and the relevant residence determination date.

UC Policy on Use of Recordings of Course Presentations

Purpose and Scope—This policy is intended to protect, and not restrict, the core academic values and processes of the University. When recordings are made of course presentations in any medium and those recordings are shared or distributed, the distribution must be conducted in a way that ensures compliance with University policies; protects the integrity and quality of the teaching and learning experience; and protects the interests of the University, the course instructor, and the University’s students.

Distribution of Recordings of Course Presentations—Except as provided herein, no business, association, agency, or individual, including a student, shall give, sell, or otherwise distribute to others or publish any recording made during any course presentation without the written consent of the instructor/presenter and the Chancellor. This policy is applicable to any recording in any medium, including handwritten or typed notes. The only exceptions are that:

1. students currently enrolled in or approved to audit that course may provide a copy of their own notes or recordings to other currently enrolled students for non-commercial purposes reasonably arising from participation in the course, including individual or group study; and

2. faculty may use recordings of course presentations, made by them or at their direction, to the extent that such use does not conflict with other University policies, including the Policy on Conflict of Commitment and Outside Activities of Faculty Members (Academic Personnel Policy 025) and the prohibition on the use of University facilities for commercial purposes (Academic Personnel Policy 015, Part II.C.3); and

Form and Documentation Deadline

New students—You are required to submit an online Statement of Legal Residence (SLR) at bearfacts.berkeley.edu by the third week of the semester for which you are admitted. Failure to submit an SLR will result in your being classified as a nonresident and assessed the additional nonresident fee.

Continuing students—If you are a nonresident and believe you are eligible for resident status, you must submit an online Residence Classification Petition (RCP) at bearfacts.berkeley.edu during the filing period for the semester for which you seek resident classification. Please follow the detailed PDF instructions. The deadline to file the RCP is the last working day before the first day of instruction for the semester for which you are seeking resident status.

All students—If additional documentation is required for a residence classification but is not readily accessible, you will have until the end of the eighth week of the applicable semester to provide it. Failure to meet this deadline will result in your file being closed and your status remaining as a nonresident.

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All students—If additional documentation is required for a residence classification but is not readily accessible, you will have until the end of the eighth week of the applicable semester to provide it. Failure to meet this deadline will result in your file being closed and your status remaining as a nonresident.
Special Considerations Pertaining to Recordings that Capture Sounds and Images—Any distribution of a recording of a course presentation at the University of California that captures the actual sounds and/or images of that course presentation, in any medium, must consider not only the rights of the instructor and the University, but also those of other parties. Examples include the privacy rights of students enrolled in the course, the rights of guest lecturers, and the copyright interests in materials authored by others that are displayed or presented during the course presentation. It may be necessary to secure rights from these parties before any recording, distribution, publication, or communication occurs.

References:
University of California Policy on Copyright Ownership, 1992
University of California Policy on Ownership of Course Materials, 2003
University of California Policy and Guidelines on the Reproduction of Copyrighted Materials for Teaching and Research, 1986

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### Organized Research Units

- African Studies, Center for Archaeological Research Facility
- Arts Research Center
- Atmospheric Sciences, Center for Beatrice M. Bain Research Group
- Berkeley Nanosciences and Nanoengineering Institute
- Berkeley Roundtable on the International Economy
- Berkeley Seismological Laboratory
- Business and Economic Research, Institute of California Biodiversity Center
- California Institute for Energy Efficiency
- Cancer Research Laboratory
- Child and Youth Policy, Center for Chinese Studies, Center for Clinical Education, Center for Cognitive and Brain Sciences, Institute for Developing Economies, Blum Center for Doreen B. Townsend Center for the Humanities
- Earthquake Engineering Research Center
- East Asian Studies, Institute of Electronics Research Laboratory
- Emma Goldman Papers Project
- Energy Biosciences Institute
- Engineering Systems Research Center
- Environmental Design Research, Center for Environmental Law and Policy, California Center for Environmental Science and Engineering, Institute for European Studies, Institute for Functional Genomics Laboratory
- Governmental Studies, Institute of Human Development, Institute of Human Rights Center
- Research on Labor and Employment, Institute for Information Technology Research in the Interest of Society, Center for Integrative Planetary Science, Center for International and Development Economics Research, Center for International Studies, Institute of Japanese Studies, Center for Korean Studies, Center for Latin American Studies, Center for Law, Business and the Economy, Berkeley Center for Law and Society, Center for the Study of Law and Technology, Berkeley Center for Legal Research, Institute for Management, Innovation and Organization, Institute of Middle Eastern Studies, Center for Miller Institute for Basic Research in Science
- Morality, Law, and Public Affairs, Kadish Center for Neuroscience Institute, Helen Wills Personality and Social Research, Institute of Pure and Applied Mathematics, Center for Quantitative Biomedical Research, the California Institute for Radio Astronomy Laboratory
- Race, Ethnicity and Diversity, Chief Justice Earl Warren Institute on Real Estate and Urban Economics, Fisher Center for Research on Labor and Employment, Institute for Science, Technology and Society Center Slavic, East European, and Eurasian Studies, Institute for Study of Sexual Culture, Center for Social Change, Institute for the Study of Social Justice, Thelton E. Henderson Center for South and Southeast Asia Studies, Center for...
Visiting Scholar and Postdoc Affairs (VSPA) Program

Berkeley is host to more than 2,400 visitors from other universities, colleges, research laboratories, and government agencies who conduct research using University facilities. The Visiting Scholar and Postdoc Affairs (VSPA) Program was established to accommodate scholars with a Ph.D. or equivalent degree to pursue their research and professional interests on the Berkeley campus.

The VSPA Program has five decentralized authorizing units: College of Chemistry, College of Engineering, College of Letters and Science, College of Natural Resources, and International and Area Studies. All other campus units are under the auspice of the central VSPA Program Office.

Appointments in the VSPA Program are contingent upon the interest and ability of a campus department or organized research unit (ORU) to accommodate the affiliate for the period of time desired. In order to be affiliated as a visiting scholar or postdoc, you must be sponsored by a faculty member of the University of California, Berkeley and must meet certain requirements. Please note that visiting scholars are assessed an annual $200 University Services Fee. Postdoctoral appointees are not charged this fee.

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Note: VSPA affiliates should not expect sponsoring units or libraries to provide them with workspace.

For more information about the VSPA Program, please go to vspa.berkeley.edu.

Campus Historical Resources

University Archives, located in the Doe Annex of the Bancroft Library, is the official repository of historical records and memorabilia for the Berkeley campus, and contains tens of thousands of documents, photographs, records, and artifacts. For more information, contact the archivist at (510) 642-2933. (Most records and photographs can also be looked up and reviewed in the reading room of the Bancroft Library.)

The Regional Oral History Office in the Doe Library contains transcripts of in-depth interviews with hundreds of notable and fascinating Californians, including many UC faculty, alumni, and administrators. Call (510) 642-7395.

Blue and Gold Yearbooks can be found in the open stacks of the Main Library. Early editions, particularly those before World War II, contain much historical information and descriptions of the University.

Hall of Fame Room, Memorial Stadium, contains permanent records of the history and triumphs—including Olympic victories and NCAA championships—of Cal athletics, including sports from track and field to crew, rugby, tennis, and football. Trophies, artifacts, photographs, and equipment dating back a century are on display. The Hall of Fame is open from 10 a.m. to 3 p.m. the first Thursday of each month. For more information, call (510) 642-3839.

University History Seminar is a group that meets regularly in the Townsend Center for the Humanities to discuss topics in campus and University history. Faculty, staff, alumni, and students give presentations on special topics and research, and the group periodically publishes “Chapters in the History of the University of California.” Call (510) 643-9212 for more information.

A Cal History and Traditions Class is offered periodically through DeCal (Democratic Education at Cal). This student-initiated, for-credit class introduces students to the history and culture of the University and includes tours of the historic campus, Cal songs and spirit traditions, and talks by administrators, faculty, and alumni. For more information, call the DeCal office in Eshleman Hall at (510) 642-9127.

Non-University Resources

• Berkeley Public Library history collection (Central Library)
• Berkeley Historical Society and Museum
• Berkeley Architectural Heritage Association

CAL Quiz
No. 37
What is the official significance of the saber-toothed tiger statue in the plaza at the southern end of McCone Hall? (Answer on page 526.)
Appendix

Officers of Administration

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¹Appointed by the Governor for terms of 12 years
²Appointed by the Regents

CAL Quiz
No. 38
Barrow Lane is the little street that runs behind Sproul Hall. How does the name relate to Barrows Hall, which the lane passes?
(Answer on page 526.)
Appendix

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CAL Quiz
No. 39
What are the hills called on either side of Strawberry Canyon, above Memorial Stadium?
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CAL Quiz
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What is the white stone that is used on so many of the older campus buildings, including Doe Library and Sather Gate?

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Whose head hangs over the main (north) entrance to Doe Library?
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CAL Quiz
No. 45
When did student government begin at Berkeley?
(Answer on page 526.)
Answers to CAL Quiz*

1. (from page 8)
William Tyndale (1494-1536) translated the Bible into English from the original Greek and Hebrew and gave us most of the famous phrases from the King James Authorized Version. In addition to “Let there be light,” he first used the words “And the truth shall set you free,” “Am I my brother’s keeper?”, “Love thy neighbor as thyself,” and “Let my people go.” For his pains he and his books were burned for heresy.

2. (from page 17)
Booth asked that the University work toward a future that would “make the voter intelligent, the officer more honest, do away with soldiers, make (gun) powder a blasting agent, and war a memory.”

3. (from page 19)
Grains and fruits, the products of agriculture. The building originally housed the College of Agriculture, among other academic departments.

4. (from page 20)
Lawrencium, berkelium, and californium. All were discovered by Berkeley researchers. Lawrencium is named in honor of Ernest Lawrence, the first Berkeley professor to win the Nobel Prize.

5. (from page 26)
Benitoite is a sapphire-blue crystal originally found only in San Benito County. In 1907, Professor George Louderback, chair of the Department of Geology, was the first to analyze and describe the mineral when a gemologist friend from San Francisco brought him a sample.

6. (from page 27)
The Tilden Football Players statue, won by the University as a Big Game prize in 1899, was the first permanent outdoor sculpture on campus. Soon afterward it was installed on campus near the old running track and playing field (now covered by the Life Sciences complex). The statue now stands south of the Life Sciences Addition. Over the years, a wide variety of other art donations followed.

7. (from page 28)
Foresters’ Circle was a ring of log benches around a firepit in the middle of the Eucalyptus Grove. Forestry students from nearby Mulford Hall used to gather there to socialize. In the 1980s, because of concerns about fire danger, the log benches were scattered to other locations on campus.

8. (from page 30)
Oski is always played by a student, but his or her identity inside the costume is kept secret. Oski says nothing. He’s a silent bear who expresses his California loyalty and emotions with gestures.

9. (from page 37)
“Washington Crossing the Delaware” (1851), also by Leutze, hangs in the Metropolitan Museum of Art, New York. Our monumental canvas hung for many years in the University Art Museum. Before that, it was found rolled up in the basement of Hearst Gymnasium, where it had lain for 53 years.

10. (from page 39)
On October 16, 1945, Robert Oppenheimer, a physics professor at Berkeley, retired as director of the Los Alamos weapons lab after the successful completion of the first atomic bomb. UC President Robert Gordon Sproul went to Los Alamos for a ceremony honoring Oppenheimer and recognizing the University’s contribution to the war effort. The prayer was offered at the conclusion of the ceremonies.

11. (from page 46)
One of John Galen Howard’s drawings of Sather Tower placed two-bedroom student apartments on each floor. The plan was never implemented. The drawing is in the lobby of Sather Tower.

12. (from page 47)
In 1966 a Swiss company proposed to pay for construction of an aerial tramway running from campus up Strawberry Creek to the top of Grizzly Peak. The idea was that University staff and students could have used it for commuting, and the company would have made money by selling tickets to others interested in a recreational ride. (An odder variation of this ideas was a proposal, actually tried, to convert steep and straight Marin Avenue in north Berkeley to a ski run each winter. Private parties trucked in snow, but it melted too fast for the project to be economical.)

13. (from page 48)
At the 1962 Charter Day ceremonies, 88,000 people—many of them seated on the field—came to hear President John F. Kennedy speak. This was reportedly the largest crowd ever to hear President Kennedy in person. (The largest crowd to see a football game at the stadium was 83,000, against Navy in 1947.)

14. (from page 53)
Hearst wanted to build a grand monument, designed by Bernard Maybeck, that would have covered acres of campus between Bancroft Way and Faculty Glade. It would have consisted of a gymnasium, a huge domed auditorium resembling Maybeck’s Palace of Fine Arts, museums, music and architecture buildings, extensive sculpture gardens, courtyards, “ruined temples,” and a statue of Phoebe Hearst. Only the auditorium (Hearst Gymnasium) was ultimately built.

15. (from page 66)
Albert Bender, a San Francisco philanthropist and art collector, gave the sculptures to the University in the 1930s. They were originally located in front of the old Powerhouse, which was converted to the University Art Gallery in 1933.

*The CAL Quiz was compiled by Steve Finacom.
16. (from page 67)
May T. Morrison, class of 1878. The Morrison Library in the Doe Library building, and Morrison Hall, which houses the Music Library, are named for her.

17. (from page 68)
An asteroid and an oil tanker (Chang-Lin Tien), and an atomic element (Glenn T. Seaborg).

18. (from page 70)
From 1891-1924 the Botanical Garden had a large greenhouse in the center of the campus, next to its outdoor planting beds. The greenhouse stood approximately where the little parking lot next to Haviland Hall is today. It looked a lot like the famous Conservatory of Flowers in San Francisco’s Golden Gate Park.

19. (from page 71)
“Berkeley, near Oakland.” That was in the days before zip codes, and Berkeley wasn’t really a town yet, so it was prudent to add the name of the closest major town. Now the campus has not only a zip code of its very own (94720), but scores of four-digit codes for different campus departments and buildings.

20. (from page 72)
Between California Hall and Doe Library, the road splits around an oval, sloping lawn. This was once known as sophomore lawn, and any freshman who accidentally or purposefully stepped on the forbidden turf was subject to retribution by the sophomores.

21. (from page 75)
“To read well is to vanquish the centuries.”

22. (from page 77)
The Smokey the Bear hats worn by National Park Service rangers. The hats are quite similar to the Senior Sombreros worn by Cal students early in this century, and it is believed that one of the several Cal alumni who helped create and manage the National Park Service adapted the hats as part of the ranger uniform.

23. (from page 78)
Kent Dallet, late associate professor of psychology at Berkeley.

24. (from page 79)
Geology Professor Andrew Lawson did pioneering work studying earthquakes and faults and argued (correctly) that there were stable rock formations that would hold up the Golden Gate Bridge towers. The “Lawson Adit” is the old mining tunnel east of the Hearst Memorial Mining Building.

25. (from page 81)
Wurster Hall is named for William Wurster, who was a noted architect and dean of the School of Architecture, and Catherine Bauer Wurster, a respected social advocate and urban planner.

26. (from page 82)
Andy Smith, football coach from 1916-1925, compiled a 74-16-7 record and led his teams to five consecutive undefeated seasons. He died unexpectedly, and on January 15, 1926, his ashes were scattered from an airplane over the field at Memorial Stadium during his memorial service.

27. (from page 84)
Joseph Thomas Gier, an expert in thermal radiation and instrumentation, was promoted from lecturer to associate professor of electrical engineering in the College of Engineering in 1952. (He later moved to UCLA and served on the faculty there.)

28. (from page 86)
The “Big C” is the oldest documented letter on a hillside in the Western United States, perhaps in the country.

29. (from page 88)
A small gold nugget, thought to be the gold that John Marshall discovered in 1848, setting off the California Gold Rush.

30. (from page 91)
The sycamore trees on the Esplanade north of Sather Tower were originally part of the grounds of the 1915 Panama Pacific International Exposition that temporarily covered what is now San Francisco’s Marina District. They were moved to Berkeley and used in the campus landscaping after the fair.

31. (from page 94)
(d) lasers

32. (from page 95)
A large flagpole. When the tower was built, the flagpole was given to St. Mary’s College in Moraga, on the other side of the Berkeley hills.

33. (from page 504)
Edwards Track, which seats more than 20,000 spectators, was the largest facility in the country built exclusively for track and field events. The Valley Life Sciences Building was thought to be the largest academic building in the world when it was constructed.

34. (from page 505)
Stained glass windows in the Great Hall of the Faculty Club on campus are decorated with the symbols of colleges with which the Faculty Club’s founding members had been associated. Stanford was one of those schools, so there is a panel featuring a Stanford tree and red and white glass.

35. (from page 506)
The corridors of Mulford Hall, the old Forestry Building near the west end of campus, are decorated with samples of wood from around the world.
36. (from page 507)
They couldn’t use it. The elevator, operated by a key, was reserved for faculty and staff. The professors wanted to keep it available to move their experimental equipment between floors, and besides, they reasoned that students were young and healthy enough to use the stairs.

37. (from page 510)
The saber-toothed tiger is the official California state fossil. This particular statue was made for the University by Victor Bergeron, the founder of the Trader Vic restaurants. For many years the Paleontology Department and museum were located on the lower floors of McCone Hall, and Sather Tower used to be the storage place for hundreds of tiger fossils.

38. (from page 511)
There’s no connection. Barrow Lane used to be a city street, named for a businessman who operated a hotel at the corner of Bancroft and Telegraph, before the University expanded south of Strawberry Creek. It is pure coincidence that Barrows Hall, named for University President David Prescott Barrows, stands next to the lane.

39. (from page 512)
Charter Hill is the traditional name of the slope to the north, where the “Big C” is located. Panoramic Hill is the name of the residential neighborhood that climbs the heights to the south of the stadium. The lower, southwest portion of Charter Hill is informally called Tightwad Hill, after the spectators who sit there for free to watch the football games below.

40. (from page 513)
The stone is commonly called Sierra white granite or Raymond granite after the company that operated the quarry from which it came.

41. (from page 515)
“Wild Men of Kilihari” and “With Governor Pinchot in the South Seas” were shown on campus on June 14, 1932.

42. (from page 517)
Stephens Hall was the Student Union, and Moses Hall (originally named Eshleman Hall) was the Student Publications Building. From the 1920s through the 1950s, student extracurricular life centered in these buildings, and the little courtyard in between, now called the Class of 1925 Court, was the Sproul Plaza of its day, where campus events and activities were publicized.

43. (from page 518)
Athena, the classical Greek goddess of wisdom.

44. (from page 519)
Olmstead was hired by the College of California to design a plan for its new Berkeley campus, as well as a layout for the residential neighborhood the college wanted to create next to the campus. Piedmont Avenue, between Dwight Way and Memorial Stadium, with its planted median, traffic circle at Channing Way, and curves that follow the hillside, is the only piece of Olmstead’s design that survives.

45. (from page 520)
Student government began at Berkeley in March 1887 with the formation of a student-appointed committee that recommended a constitution. This makes the ASUC among the oldest student governments in the country and one of those spontaneously formed by students themselves, rather than created by administrative fiat.
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